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ABSTRACT

Findings of this detailed analysis of the problems and errors present in the 1977 University of California Union List of Serials (UCULS-77) identify four major problem areas: (1) variations in campus cataloging practices (such as choice, form, and content of entry), the existence of both brief listed and fully cataloged titles, and the presence of both successive and latest entry cataloging records, prevented the consolidation of records from the same title; (2) problems in the translation of local campus machine-readable records into the UCULS MARC-like format resulted in the creation of entries that could not consolidate correctly due to either the presence of unspecified data or the elimination of pertinent data; (3) problems were identified in matching CONSER records with UCULS records, resulting in the incorrect consolidation of CONSER records and the faulty extraction of key words from CONSER entries; (4) problems in the consolidation and Key-Word-Out-of-Context (KWOC) portions of the UCULS computer programs caused processing errors that prevented records from consolidating correctly, and adversely affected a user's ability to search the KWOC index efficiently. Appendices provide National Union Catalog (NUC) library location symbols and lists of key words and key phrases. (Author/JD)

ED 175 388

Analysis of the 1977 University of California Union List of Serials

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ABSTRACT

A detailed analysis of the problems and errors present in the 1977 University of California Union List of Serials (UCULS-77) is presented in this report. UCULS-77 was produced from UC campus and CSUC machine-readable serials files which were merged together and output as a Computer Output Microfilm (COM) publication in two parts: the UCULS-77 Key Word Out of Context (KWOC) Index and the UCULS-77 Register. The analysis relies heavily on examples from the KWOC Index, which is available for purchase, and the Register which was not published.

This report indicates that errors and problems can be traced to each step in the production process for the UCULS-77. The analysis traces the history of the UC Union List of Serials effort, summarizes errors and problems, makes recommendations for resolving UCULS problems and finally details particular problem areas.

The findings of this analysis can be summarized into four major problem areas which will become topics for further analysis. First, variations in campus cataloging practices such as choice, form, and content of entry, the existence of both brief listed and fully cataloged titles, and the presence of both successive and latest entry cataloging records prevented records for the same title from consolidating. Second, problems in the translation of local campus machine-readable records into the UCULS MARC-like format resulted in the creation of entries that could not consolidate correctly due to either the presence of unspecified data or the elimination of pertinent data. Third, problems were identified in matching CONSER records with UCULS records resulting in the incorrect consolidation of CONSER records and the faulty extraction of key words from CONSER entries. Finally, problems in the consolidation and KWOC portions of the UCULS computer programs caused processing errors that prevented records from consolidating correctly, and adversely affected a user's ability to search the KWOC Index efficiently.

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ANALYSIS OF 1977 UNIVERSITY OF CALIFORNIA UNION LIST OF SERIALS

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1.0 Introduction.

The 1977 University of California Union List of Serials (UCULS-77) is a computer generated publication containing approximately 450,000 holdings for nearly 300,000 serial titles. The holdings represent the serials collections from main, branch, and most institute libraries on the nine campuses of the University of California (UC) and the twenty-three campuses of the California State University and Colleges (CSUC) as of April 1977.

The UCULS-77 data base was created from the machine-readable serial files from the participating campuses: one file from each of the nine UC campuses and one combined file from CSUC. Additionally, the Council on Library Resources provided the University-wide Library Automation Program (ULAP) with a copy of the CONversion of SERials (CONSER) data base as of March 1977. Approximately ten percent of the combined UC and CSUC serial titles matched those in CONSER records. Records from these three sources were consolidated and output as a Computer Output Microfilm (COM) publication in two parts: the UCULS-77 Key Word Out of Context Index (KWOC) and the UCULS-77 Register.

Each entry in the KWOC contains author and/or title, holdings information, and UCULS-77 Register Index Number. In addition, the OCLC number for CONSER records, the Library of Congress Card Number (LCCN) and the International Standard Serial Number (ISSN) are included when available. A KWOC technique was chosen because it would provide maximum access to this large, essentially unedited compilation of serials records. Though the KWOC is a relatively effective means of displaying serials data, major problems existed with the data submitted for inclusion in the UCULS-77 and with the programs used to consolidate and prepare these data for publication.

The Register contains the complete bibliographic content of each record in the merged and consolidated UCULS master file. The main purpose of the Register is to provide additional information about KWOC entries. By reference to the complete data in the Register records, it is now possible to identify, document, and explain the discrepancies, inconsistencies, and consolidation errors found in the UCULS-77. Additionally, the Register was an experiment in providing librarians with a bibliographic tool to be used as a supplement to the KWOC. Unfortunately, analysis of the Register indicated that the data in the

Register are inconsistent and difficult to use. Consequently, a decision was made not to distribute the Register as a bibliographic tool. The Register, however, retains its value as a tool for analysis.

This paper reviews the result of a detailed analysis of problems in the KWOC and Register. The analysis traces the history of the UCULS from 1971 to the present (Section 2.0), and provides an overview of problems traced to each step in the production process (Section 3.0). The production steps are presented as a chain of events because each step in the chain is linked to each succeeding step, in that problems occurring anywhere in the chain affected the final products. The chain of events includes the following steps in the preparation of the UCULS:

1. Creation of campus entries (Section 3.1).
In this step, the campus formally catalogs or provides a brief entry listing for the serial.

2. Creation of the campus machine-readable record (Section 3.2).
In this step, the serial entry is converted to machine-readable form as part of the local serials system.

3. Translation of campus format to the UCULS format (Section 3.3).
In this step, the local record is translated, when necessary, into the UCULS format which is based on MAchine Readable Cataloging (MARC) tagging conventions.

4. Creation of the UCULS-77 master file (Section 3.4).
In this step, ULAP merges and consolidates UC, CSUC and CONSER files into the master file.

5. Creation of the KWOC (Section 3.5).
In this step, key words are extracted from the master file to build the KWOC Index.

6. Creation of the KWOC display format (Section 3.6).
In this step, KWOC entries are formatted, and an output tape is produced.

7. Creation of the Register format (Section 3.7).
In this step, master file records are formatted for display in the Register.

In this analysis, problems are identified at each step in the chain of events. Generally, the problems can be traced to one of a number of sources: inconsistencies in campus records, inadequate campus translation program, unexpected problems encountered in matching CONSER records, and UCULS software bugs.

General recommendations (Section 4.0) for improving the quality of the UCULS through a joint ULAP and campus effort include:

1. Development and implementation of standards for input of serials to the UCULS (Section 4.1).

2. Evaluation and revision of translation programs (Section 4.2).

3. Expansion and coordination of the present UCULS input subsystem, particularly the Sort Key Edit (SKED) program (Section 4.3).

4. Evaluation and revision of the display system, particularly the KWOC system (Section 4.4).

5. Evaluation and improvement of the utilization of CONSER records in the UCULS (Section 4.5).

6. Development of a data base system (Section 4.6).

7. Improvement of the testing environment for the UCULS (Section 4.7).

The variety of problems in the UCULS-77 are detailed in the following sections dealing with the KWOC (Section 5.0) and the Register (Section 6.0). In particular, consolidation errors and problems with the formulation and extraction of key words and key phrases are major areas of concern in the UCULS-77 because they adversely affect the retrieval of records. Consolidation errors occurred when records representing the same serial title failed to consolidate or when records representing different serial titles

consolidated incorrectly (Section 5.1). Problems with key word and key phrase programs involved incomplete and faulty extraction of key words and key phrases from titles, inconsistent selection of stop words, and the creation of blind references in the stop word and key phrase lists (Section 5.3).

The problems are first presented individually, illustrated by sample entries. Since the problems do not occur in isolation, case studies are also presented at the end of each major section to illustrate the cumulative effect of multiple problems on the location of entries in the KWOC (Case studies 1 and 2), and on the reliability of bibliographic data in both KWOC and Register records (Case study 3).

2.0 Historical overview.

Initial efforts in the development of specifications for a University of California Union List of Serials were made in late 1969 and early 1970 by the UC Serials Format Committee to take advantage of the fact that each of the nine UC campuses had a considerable amount of serials data in machine-readable form. The original intent of the project was to translate the machine-readable files of each campus into a common MARC-like format, merge the resulting translated files into a common data base, manually edit the data base to facilitate the consolidation of matching entries, and produce a union list of serials.

With the creation in 1970 of the UC Library Systems Development Program at Santa Barbara, a ULS Task Team was formed to implement recommendations of the Serials Format Committee. A preliminary version of the UCULS was produced in 1971, and Edit Lists in 1972 and 1973. None of these author/title lists were of sufficient quality to be distributed to the public as a reference tool, although they were used for interlibrary loan in spite of their problems. Manual editing of the lists was a continuous process both at ULAP and on the campuses until suspended in 1974 by ULAP, with the consent of the Serials Resources Committee, the campus advisory body. It had become clear that centralized editing without campus participation was not productive. Editing at ULAP either duplicated campus editing or created entries that did not match campus updates. Other factors which hampered the editing process included the lack of staff, the phenomenal growth of the UCULS file largely due to a Berkeley conversion project, and the absence of a permanent UCULS data base system in which to record changes.

In early 1975, the decision was made to provide access to this considerable store of UC serials data by the use of the KWOC approach. This was made possible by the development of a KWOC software package by the UC Berkeley Library Systems Office. This complex software package provides access to serials through significant key words and key phrases extracted from the author/title portions of serials records. The decision to produce this interim unedited version was based on the growing need of the campuses for an updated UCULS within as short a time as possible. Work on the project was planned in three phases. Phase one consisted of translation of campus machine-readable files to UCULS format and creation of a master file. Phase two was production of the KWOC. The first two phases culminated in the production of the 1976 UCULS. The third phase, to provide an edit listing for

use in improving the quality of the UCULS, was deferred in 1976, but implemented with the production of the UCULS-77 Register. The production of UCULS-77 was similar to the 1976 edition with the exception that the UCULS-77 contains CONSER and CSUC entries. In both editions the same programs were used to process the campus serials files submitted to ULAP.

Experience with the KWOC Index has validated the usefulness of this approach as a reasonable means of producing a finding list from unedited data. However, as the size and bibliographic complexity of the file increases, the KWOC approach is reaching the limits of acceptability. Consequently, planning is under way to improve the quality of the UCULS file so that the resulting product will be more useful as both a finding list and a bibliographic tool.

Problems in the UCULS-77 are complicated by the fact that some of the errors are the product of more than one cause. The next section attempts to untangle the origin of the errors through tracing the chain of events by which campus serial titles became entries in the UCULS-77.

3.0 Overview of problems in the production of the UCULS-77.

Entries in the UCULS-77 were the result of a long and sometimes involved process beginning with the creation of the campus records and ending with the output of a COM-ready tape for the production of the KWOC and Register. Problems occurred at every step in the production process presented in this analysis as a chain of events. It is important to understand the complexity of the whole process because problems occurring anywhere in the production chain adversely affected the final products. This section outlines the production sequence and describes the types of problems that occurred at each step.

3.1 Problems traced to the creation of campus entries.

Each campus has a set of procedures for creating serials records for their individualized serials systems. In general, campuses currently follow the Anglo-American Cataloging Rules (AACR) as implemented by Library of Congress (LC) policy and practice, and successive entry cataloging for creating serials entries in their libraries. The UCULS-77, however, also contains older records established under latest title procedures, and brief entries created outside of the formal cataloging process.

Variations in the way campuses apply the rules of bibliographic description, and irregularities caused by the presence of both fully and partially cataloged serials in the same file, appear to be major sources of consolidation errors in the UCULS-77. For example, variations in the treatment of diacritics and the spelling of foreign language entries, and differences in punctuation and spacing particularly with acronyms and abbreviations, contributed to records not consolidating.

One of the benefits of the KWOC approach is that generally, records that fail to consolidate will be found adjacent to one another under key words or phrases common to all variations. However, in a file as large as the UCULS-77, the KWOC approach breaks down as an effective tool for finding and recognizing multiple records for the same serial title when variant cataloging practices have created one record with a corporate author main entry, a second record with a full title main entry including subtitles, and a third record with a brief title main entry. An informal ULAP study of California corporate names in the 1976 UCULS indicated that as many as half of these serials did not receive full conventional cataloging treatment, thus compounding the

problems.

Brief title entries, particularly those that consisted of one word such as VISION, with no data added to distinguish between the many serials published with this identical title, were incorrectly consolidated. As a result, holdings and bibliographic data representing different serials with the same brief title were combined into a single UCULS record.

Title changes remain a perpetual problem. Although most UC campuses now use successive entry cataloging for title changes, records established under latest entry cataloging rules still exist in campus files. In some UC campus systems, title change information, such as "Continues" and "Continued by" notes, is carried in the title field rather than tagged in the appropriate MARC field. This important cross reference information found in the title field was not in the original specifications of the content of campus machine-readable files submitted to ULAP, and the references were often eliminated in UCULS processing. In addition, the original UCULS processing specifications did not provide for displaying title change notes in the KWOC. The combined effect of these two factors is discrepancies in campus holdings statements that cannot be explained by the data provided in the KWOC entry, and can only be explained by consulting the Register.

3.2 Problems traced to the creation of the campus machine-readable record.

Brief and fully cataloged serial records are converted into machine-readable records as part of the campus serials system. Historically, each campus maintains its own processing system and record format, although recently a number of campuses have changed to the UC Berkeley system and format. The result of the conversion process is a campus file of machine-readable records in a local format.

In conversion to machine-readable records, problems occurred in transcribing the data including misspellings, errors in punctuation, addition of extraneous characters, and erratic spacing, all of which contributed to the non-consolidation of records.

3.3 Problems traced to the translation of campus format to UCULS format.

Machine-readable serials files from each UC campus were translated from the local campus format into the UCULS format which is based on MARC tagging conventions. The amount of translation and whether it was done on the local campus or at ULAP varied campus by campus. Campuses which had implemented the

UC Berkeley format for their serials records required very minor translation and this was done at ULAP. Other UC campuses which maintain non-MARC systems translated their records into a common format before submitting their tapes to ULAP for final processing to UCULS format. Translation of the CSUC machine-readable file from a locally defined non-MARC format to UCULS format was done at ULAP.

Whether done at ULAP or by the campus, the translation programs were designed to extract specific data elements from campus records and place them into the UCULS MARC-like format. In this process, data elements were uniformly tagged and formatted, a necessary step in merging and matching records from different sources.

The translation programs, however, were developed several years ago and in some cases did not keep up with the evolving campus files. For example, the programs were not designed to handle the unexpectedly wide range of data in the title field of campus records. Data not screened out by the translation programs included cross reference notes, imprint information, beginning and ending dates, and local system control symbols. This type of data embedded in the title field, with no subfield codes separating data elements, often contributed to the non-consolidation of records.

In addition some of the UC campus files required a final translation operation and this was done at ULAP. The UCULS MARC-like format contains separately tagged corporate author (110) and title (245) fields. Four UC campus files contain author and title data combined in one field. Translation programs on these campuses placed this combined author/title data into a non-MARC 244 field. A UCULS program completed the translation by attempting to split the 244 into MARC 110 (author) and 245 (title) fields. The program to accomplish this split required that the author precede the title and that the two data elements be separated by a period. If other unspecified data, such as dates or imprint, were embedded in the 244 field, or an unexpected period occurred in an author or title, an accurate split of the 244 field into the 110 and 245 fields was often not possible.

The CSUC file required special translation since it was submitted to ULAP in a non-MARC format. For example, a wide variety of notes is found immediately following the main entry. UCULS translation programs attempted to transfer these notes to appropriate MARC fields. No further attempt was made to split the remaining main entry data which was all placed in the 245 field. Again, incomplete specifications concerning the content of the main entry

field often made an accurate split of the combined data elements difficult.

Title change information in UC records was also not handled properly in the translation process. The UCULS format follows MARC tagging conventions for title change data. Title change data carried as notes embedded in the title field of UC records were not moved to separately tagged fields because these data are outside the original design of the UCULS program. Instead, whenever they could be identified, these notes were eliminated so they would not interfere with consolidation.

Reference notes appearing as entries in the title field also caused problems. Notes such as

> 'Annals. In addition to the following titles see under names of academies, institutions, societies, etc.'

and

> 'Journal of Economic Abstracts. See Journal of Economic Literature.'

were embedded in the title field and were not removed in the translation step. Consequently this information was used in the consolidation and key word extraction process. For example, the first note above will be found as an entry in the KWOC under the key words ANNALS, ADDITION, FOLLOWING, TITLES, NAMES, ACADEMIES, INSTITUTIONS, and SOCIETIES.

3.4 Problems traced to the creation of the UCULS-77 master file.

The UCULS-77 master file was created by machine editing, sorting, and consolidating serial records contained in the translated tapes from the UC and CSUC campuses plus CONSER records that had matched UC or CSUC records during the consolidation process.

The technique used to build the master file involved extracting a SKED key from each record and sorting the files by this SKED key. SKED stands for Sort Key Edit and is a 256 character string extracted from the author and/or title portion of a record. In extracting the SKED key, certain decision rules were followed to increase the chance of records matching. No manual editing was performed.

Decision rules for extracting the SKED key included the following: (1) Convert all letters to upper case; (2) Delete commonly occurring English language initial articles except those having meaning in another language; (3) Standardize initialisms by removal of spaces and punctuation, e.g. A.M.A. and A M A would be changed to AMA; (4) Delete characters which are not

letters or numbers, such as diacritics and punctuation; (5) Expand the following abbreviations to sort on full spelling: dept. or DEPT. to DEPARTMENT, U.S. to UNITED STATES, Gt. Brit. or G.B. or G. Brit. to GREAT BRITAIN, abt. or ABT. to ABTEILUNG; (6) Normalize sorting of diacritical marks by omitting the diacritic rather than substituting a double letter, e.g. für and fuer sorted as FUR, årsbok and aarsbok sorted as ARSBOK, f⌀r and foer sorted as FOR.

These decision rules involved only computer recognition of variations and did not alter the spelling or punctuation of the data within the record. For instance, "dept." remained abbreviated in the record but was changed to "DEPARTMENT" for extraction of the SKED key.

After extraction of the SKED keys from individual records, the UC, CSUC, and CONSER files were sorted and merged together into one file. This "raw" file was in standard computer sort sequence based on the content of the SKED keys. A second process selected records with matching SKED keys and consolidated these clusters of two or more records into a single UCULS record. When a CSUC or UC record matched a CONSER record, additional checking was performed on dates, when available, to further reduce the possibility of incorrect consolidation. CONSER records that did not match with any campus records were not retained in the UCULS file. The result of this series of programs was a master file of UCULS records in SKED key order. Each record in the UCULS-77 master file was assigned a unique Register Index Number.

In the sorting and merging process each bibliographic data element in the individual records (except for the LCCN, ISSN, and data in the 008 field) was identified as to source - CONSER, CSUC, or one of the nine UC campuses. Source codes are listed in Section 6.2.1. No specified bibliographic or holdings data were discarded from any of the records processed.

Although all bibliographic information is retained in the master file, consolidated UCULS records display only one author and/or title field in the KWOC and Register. Other variable fields (except for the LCCN and ISSN fields) are repeated in the Register display as many times as they occur in the individual records. It was felt that repeating the author and/or title fields would be redundant since the individual records in a consolidated UCULS record would have identical SKED keys and therefore identical author and/or title data. The identification of the source or base record for these fields was made according to the following sequence: CONSER, UC Berkeley, UC Santa Barbara, UC San Francisco, UC Los Angeles, UC San Diego, UC Riverside, UC

Irvine, UC Santa Cruz, UC Davis, and CSUC. Thus, if a consolidated UCULS record contained records from UC San Francisco, UC Irvine, and UC Davis, the source or base record for the author and/or title fields would be UC San Francisco.

Problems with consolidation of records can be traced in part to bugs in the SKED program and also to the unexpectedly wide range of data in the author and title fields (as discussed in the previous section). The SKED program, which was written a number of years ago, did not appear to meet its objectives for the current system. Not only were there problems with records which should have matched and did not, but there were many cases when different serial publications with the same short title consolidated when they should not have. Incorrect consolidation was a particular problem with CONSER records that contained distinguishing title data in subfields not included in specifications for building SKED keys. It was particularly difficult to construct identical SKED keys for romanized entries or entries in another language due to extensive variations in spelling and, again, the wide range of data used to describe the publications.

3.5 Problems traced to the creation of the KWOC.

The consolidated UCULS-77 master file was processed through the KWOC software package developed by the UC Berkeley Systems Office adapted by ULAP staff for production of both 1976 and 1977 UCULS. The KWOC software extracted key words and key phrases from the 110 and/or 245 fields of UCULS records in the master file. In addition, the software created an abbreviated record from the contents of each UCULS record for each key word and/or phrase extracted from the record. These short records were then listed alphabetically by main entry under the appropriate key words and phrases. These key words and phrases were sorted into an alphabetical sequence. Because certain commonly occurring words in authors and titles would accumulate too many entries, lists of stop words were compiled for key words that would be extracted only under specific conditions.

Major problems existed with every phase of the KWOC program with regard to the extraction of key words, selection of stop words, formation of key phrases and sorting of entries. It is not yet clear whether these errors were the result of bugs in the programs, incorrect use of the programs by ULAP, the existence of unspecified data remaining in the master file, or a combination of all three factors.

An additional complication is the inconsistency between the KWOC sort programs and the sort programs that created the UCULS-77 master file. Decision rules made for the master file sort process did not always apply to the KWOC sort process. For example, although "Dept." and "Department" interfile in the master file, and are recognized as "DEPARTMENT" for SKED key extraction, the KWOC sort program did not recognize "Dept." as an alternate spelling for "Department". As a result, in the KWOC, "Dept." files separately from "Department" and both are extracted as key words. This inconsistency occurred because the master file sorted on the normalized SKED key while the KWOC sorted and extracted key words and phrases from the actual unnormalized words in the author and/or title fields.

3.6 Problems traced to the creation of the KWOC display format.

In this step, the UCULS-77 KWOC file was processed through a display program that created the COM images for the KWOC Index. This program contained specifications for the format of key words, records, and holdings. Diacritics were replaced by an underscore character, due to an inability of the COM vendor to produce diacritic characters. This was the only alteration made to campus or CONSER records. The bibliographic content of all records was reformatted but all specified data were displayed intact, exactly as received by ULAP, translated into the UCULS format.

There were a number of irregularities in the KWOC display with regard to punctuation and the truncation of ISSN and titles.

3.7 Problems traced to the creation of the Register display format.

The UCULS-77 master file was also processed through a display program that created COM images for the Register. A unique Register Index Number was sequentially assigned to each UCULS record. This sequential assignment forced the Register number order to correspond with the SKED key order of the master file. Records that contained irregular subfield codes in their 110 and/or 245 fields were displayed at the beginning of the Register and flagged with a pound (#) sign.

The general display format is based on MARC tagging conventions. All bibliographic data available for each record are displayed with the appropriate MARC tags, indicators, and subfield codes. The addition of CONSER, CSUC, and UC campuses source codes to identify the source of data elements was explained in Section 3.4 on creation of the master file.

Holdings were not included in the Register because it was intended for use as a supplement to be used in conjunction with the KWOC Index.

There were only minor problems in the Register display with regard to punctuation and the incorrect assignment of the CONSER source code to CSUC 110 and 245 fields.

SUMMARY

Errors and problems in the UCULS-77 were the result of many factors. Problems can be traced to one or more steps in the production chain. In this analysis, categories of problems have been identified as they are manifested in the KWOC and Register. Errors in processing records occurred due to program bugs or the use of programs not specifically designed to handle UCULS data. Other problems were caused by processing unexpected and undocumented variations in data through UCULS programs with often surprising results.

It is not always possible at this stage of analysis to state accurately the origins of each problem. Further study is needed to determine precisely the causes of the problems. Recommendations on the development of procedures and programs to eliminate these errors are presented in the following section (4.0). Sections 5.0 and 6.0 examine in detail problems found in the KWOC and Register.

4.0 Recommendations.

The UCULS is a joint ULAP and campus effort. The campuses supply the serials data and translate the local campus formats to a common MARC-like format. ULAP processes the translated campus files, merges the records from the nine campuses and outputs the combined file in a KWOC format. Improvement of the quality of the list will require the cooperation of both the campuses and ULAP.

This analysis shows that further work and refinement is needed in all areas of the UCULS system. It appears that even more sophisticated computer programs will not solve all the problems identified in this analysis without both standardization of input and manual editing. General recommendations follow.

4.1 Development and implementation of standards for input of serials to the UCULS.

Greater standardization of input is necessary to upgrade the UCULS and improve the accurate consolidation of serial titles from UC, CSUC, and CONSER. Standards which should be taken into consideration include adherence to:

1. AACR for bibliographic description and successive entry cataloging,
2. MARC format for recording serials data in machine-readable form,
3. ANSI Z39 standards for recording holdings, and
4. ISDS/NSDP guidelines for using ISSN and key titles.

In addition to working on bringing UCULS records into line with established national standards, a minimum data element set should be developed for UCULS records. The minimum data element set should apply to both fully cataloged and brief listed titles and should be designed to provide the data needed to more precisely merge cataloged and brief listed titles in the same list. Supplementary standards also should be developed on how serial titles are recorded from the piece in hand. Standardization in the recording of numerals, punctuation, subseries and parts, and abbreviations would greatly improve the consolidation of identical titles.

ULAP will be working with the campuses to help establish standards for UCULS input including development of a minimum data element set and use of ISSN and key titles.

4.2 Evaluation and revision of translation programs.

For campuses with serial files not in a MARC-like format, a campus by campus evaluation should be performed to ensure that the translation programs are up to date with the campus serial files and UCULS specifications. Campus translation programs were written a number of years ago and, in some cases, do not accurately translate all current or required campus information. In addition there has been an expansion of the UCULS system to accommodate considerably more information in the UCULS-77 than in previous lists. In particular the UCULS system must be able to accept and utilize title change or successive entry information found in the campus files which is not at this time uniformly recorded in the UCULS master file.

4.3 Expansion and coordination of the present UCULS input subsystem.

Considerable effort shoud be directed to developing an input subsystem to screen, normalize, and consolidate input records carefully. At the present time the input subsystem consists of a number of stand-alone programs, some of which considerably predate the UCULS. In particular, the present SKED program should be evaluated and rewritten into a consolidation subsystem incorporating a number of identification and standardization techniques not currently implemented or available. In addition a manual editing step should be developed in order to intervene when necessary to improve the consolidation of records.

4.4 Evaluation and revision of the display system.

The programs which take records from the master file and display them in the KWOC and Register should be evaluated and rewritten into a coordinated processing stream. In particular, the KWOC system should be reviewed. This system appears to have a number of features which were not implemented in the UCULS. There also appear to be serious problems with the extraction of key words and key phrases in UCULS records which may account for some of the problems encountered in the display of KWOC entries. In addition, the formatting programs for the display of the KWOC and the Register should be upgraded based on input from active users of the KWOC on each campus.

4.5 Evaluation and improvement of the utilization of CONSER records in the UCULS.

CONSER records caused unexpectedly complex problems for both the consolidation and KWOC programs. Utilization of CONSER records remains an important feature of the UCULS. However, an in-depth analysis of the effect of CONSER records on various portions of the UCULS system is needed before CONSER records are added to the file again. It is likely that significant modifications to the software will be needed to handle CONSER records.

4.6 Development of a data base system.

A permanent data base system for serials must be developed before UCULS records can be updated on a record by record basis. Through this data base system it must be possible to build, maintain, and edit serials data from all nine UC campuses, CSUC, and CONSER records. This would be in contrast to the present UCULS master file which is created each time a list is produced and cannot be modified by campus updates or merged easily with CONSER records.

In particular, a direct link should be developed between UC records currently being input to the CONSER data base at ULAP and the UCULS data base. UC records from the UCULS are entered into the CONSER data base but there is no direct way of linking the CONSER record with the originating UC record in the UCULS master file. At present this extensive manual editing is not fully available for utilization in the UCULS. Plans should also be developed to return the results of ULAP CONSER editing directly to the campuses.

4.7 Improvement of the testing environment for the UCULS.

It was planned that the UCULS-77 would utilize, essentially unchanged, the software that produced the 1976 UCULS. Software was added to process CSUC and CONSER records and provide a Register. Because the system was tested before final production of the 1976 UCULS and because of staff and budget limitations, an extensive testing environment was not established for the 1977 edition. Many of the unanticipated problems outlined in this analysis would have been spotted during testing. For this reason, a comprehensive testing environment must be established to review carefully the outputs of each stage in the UCULS production system prior to final production.

ULAP intends to follow procedures for the UCULS that are proving

successful in building the Union Catalog data base. Detailed bibliographic specifications will be prepared. Program modules will be designed to meet these specifications. The programs will be thoroughly tested and modified when necessary so that in the final production, there will be no surprises. Although it will not be possible to resolve all the problems identified in this analysis, it is anticipated that the major inconsistencies and errors can be removed in the next UCULS with further refinements in continuing future editions.

5.0 Problems identified in the KWOC.

The KWOC approach was intended to provide maximum access to records in the UCULS file by bringing together entries sharing the same words in the author and/or title. All significant words (disregarding articles and conjunctions) in the author/title portion of records in the UCULS master file were to be extracted as key words or key phrases, thus providing multiple access points. The KWOC approach also results in a quasi subject and geographic search capability. To prevent an unwieldy number of entries from accumulating under commonly occurring words, lists were compiled of "stop" words, which consist of key words extracted only under specific conditions.

Each KWOC entry contains the author and/or title, holdings, and Register Index number. When available, the LCCN, ISSN, and OCLC number for CONSER records are also included.

Experience with earlier editions of the UCULS made the problems with consolidation of records in an unedited file fairly predictable. It was hoped that the KWOC approach would minimize this problem to an acceptable level, as appeared to have been the case with the 1976 UCULS. However, addition of CSUC and CONSER records to the UCULS-77 drastically increased the complexity and range of data. Preliminary analysis indicates that the problems caused by the addition of these two files were unexpectedly extensive and complex.

When focussing on specific examples of problems, it is easy to become overwhelmed. It should be noted that the 1977 UCULS KWOC Index is a useful finding list particularly for interlibrary loan, that records from various cataloging departments did, in many cases, consolidate correctly, and that the majority of key words and phrases did provide the necessary access to records.

This section deals with problems identified in the KWOC. The first part (5.1) contains detailed examples of a familiar problem - the failure of records for the same serial title to consolidate into a single record. The problems in these examples can be traced to those steps in the chain of events that resulted in the merging and consolidating of campus records. These examples illustrate manifestations of problems occurring in the creation of campus cataloging entries and campus machine-readable records, in the translation of campus files, and in the creation of the UCULS-77 master file.

The second section (5.2) discusses in detail the inconsistent sorting of key words and entries in the KWOC, particularly with regard to acronyms and initialisms.

The third section (5.3) concentrates on problems with key words and key

phrases. These problems can be traced to that part of the production chain that resulted in the COM-ready tape, principally the KWOC software package.

The fourth section (5.4) consists of two case studies that illustrate the cumulative effect of problems on searching for a serial in the KWOC.

It must be emphasized that problems identified in the KWOC are only manifestations of problems occurring somewhere in the production chain. Entries in the KWOC do not contain enough information to allow more than tentative guesses on potential causes of problems. Reference to the Register record, however, does show how the data appeared in the translated campus or CONSER record, and permits the first step in assigning causes accurately.

The examples in this section serve two purposes. The primary purpose is to provide the ULAP staff with concrete examples of errors that need immediate attention. The examples are also intended to provide the users with some explanation for discrepancies in the KWOC that have been reported to ULAP.

5.1 Sample consolidation problems.

The failure of records for the same serial title to consolidate occurred more often than anticipated. As a first step in understanding these errors, examples have been reproduced from the KWOC illustrating entries for the same title which failed to consolidate. Each example consists of one or more entries from the KWOC and, when pertinent, entries from the Register. Each example also contains an analysis of the type of problem which may have caused the failure of like entries to consolidate.

As described in Section 3.4, records failed to consolidate when they contained different SKED keys. In the KWOC entries found in the following fifteen examples, UCULS programs should have extracted identical SKED keys but did not do so because of variations in the author/title fields of campus entries. To save space in the examples, the holdings statement is frequently shortened. Reference to the location of the entries in the KWOC and Register is provided so that the complete holdings can be easily found.

Example 1 - Multiple KWOC entries for the same serial

```
1. BOOSEY and Hawkes, Inc., New York. Newsletter
                REGISTER 04567803
      SANTA BARBARA     CU-SB     [?-]1965-
2. BOOSEY and Hawkes. Inc., Oceanside, N.Y. Newsletter
                REGISTER 04567900
      NORTHRIDGE        CNoS      1-,1965-
      SAN DIEGO-C       CSdS      CURRENT 2 YEARS ONLY
      SONOMA            CRpS      3-,1968-
3. BOOSEY and Hawkes, New York. Newsletter
                REGISTER 04568103
      LOS ANGELES       CLU-MUS   1-
4. BOOSEY and Hawkes. Newsletter
                REGISTER 04568209
      BERKELEY          CU-MUSI   For Issues Received,Consult
                                  Library Listed
```

1., 2., and 3., and 4. — KWOC fiche 0034 frame H 13 page 9064

Probable causes for failure of entries to consolidate: Variation in content of entry.

This example illustrates the variety of data embedded in the author and/or title fields of UCULS records.

Entries 1 and 2 contain the abbreviation "Inc." following the corporate author. The addition of terms indicating corporate status such as Ltd. and Inc. can often be responsible for the failure of entries to consolidate.

In addition, Entries 1, 2, and 3 contain place names as distinguishing data. Place of publication can vary widely, e.g. city only, state only, city and state, and is a common cause for non-consolidation of UCULS records.

Example 2 - Multiple KWOC entries for the same serial

1. JOURNAL of Health, Physical Education, Recreation
REGISTER 17038300
BERKELEY CU-ED/P 1-45,1930-74//
IRVINE CU-I 81-771930-1936/,821-45,(1950-1974).

1. KWOC fiche 0137 frame H 17 page 36831

2. JOURNAL of Health, Physical Education, Recreation. v. 1-45; Jan. 1930-1974.
Physical Education.
REGISTER 17038404 LCCN 36038242.
BAKERSFIELD CBak 18,1947.21-24,1950-1953.27-31,1956-1960.33-45,1962-1974
CALEXICO CSdS-Iv 31-43,1960-1972.(44,1973)
CHICO CChiS 1-45,1930-1974,MICROFILM,1-42.

2. KWOC fiche 0137 frame I 17 page 36882

Probable cause for failure of entries to consolidate: Variation in content of entry.

This example illustrates the variety of unexpected data that can be found embedded in the title fields of UCULS records. The variety of data makes computer recognition of variations not feasible unless the data is subfield coded.

Entry 2 contains volume numbering and dates of publication, plus a title varies note. Without this additional data, Entries 1 and 2 would consolidate.

Example 3 - Multiple KWOC entries for the same serial

1A. JOURNAL of marketing research
REGISTER 17864503 OCLC
BERKELEY CU-SOCS 1,1964-
DAVIS CU-A 1,1964-
CU-A 1,1964-

1A. KWOC fiche 0138
frame D 02
page 36871

2A. JOURNAL of Marketing Research. [microfilm]
REGISTER 17864008
LOS ANGELES CLU-RGT 9,1972-

2A. Same

1B. JOURNAL of invertebrate pathology
REGISTER 17852900 OCLC 1782964
BERKELEY CU-BIOL 1,1959-
CU-ENTO 1,1959-
IRVINE CU-I-BS 01-26,(1959-1975)+

1B. KWOC fiche 0138
frame B 01
page 36854

2B. JOURNAL of Invertebrate Pathology. (Xr)
REGISTER 17853003
DAVIS CU-A 1,1959-
CU-AR 1,1959-

2B. KWOC fiche 0138
frame C 01
page 36855

Probable cause for failure of entries to consolidate: Variation in content of entry.

These examples illustrate the consolidation problem resulting from data that was not removed during the campus translation process.

Notes embedded in the title field such as the microform note in Entry 2A, and the (Xr) Referred from note in Entry 2B, could not be handled correctly in UCULS processing because they were not within the specified scope of data included in the title field. This type of unspecified data was commonly responsible for the non-consolidation of otherwise matching entries such as Entries 1A and 2A, 1B and 2B.

Example 4 - Multiple KWOC entries for the same serial

1A. REVUE Europeenne d'etudes Cliniques et Biologiques
REGISTER 28007504

BERKELEY	CU-BIOL	1-17,1956-72//
DAVIS	CU-AM	15-17,1970-72
IRVINE	CU-I-M	815-17(1970-72)

2A. REVUE Europeenne d'Etudes Cliniques et Biologiques. European Journal of Clinical and Biological Research
REGISTER 28007609

SANTA BARBARA	CU-SB	16-17,1971-72

1A. & 2A. KWOC fiche 0221 frame N 04 page 59218

1B. CANADIAN Journal of Genetics and Cytology
REGISTER 07294908

DAVIS	CU-A	1,1951-
	CU-AM	1,1951-
IRVINE	CU-I-BS	81-16,(1959-1974)+

2B. CANADIAN Journal of Genetics and Cytology. Journal Canadien de Genetique et de Cytologie
REGISTER 07295004

CHICO	CCHS	1,1959-
FRESNO	CFS	7-,1965-

1B. KWOC fiche 0044 frame F 15 page 11782

2B. KWOC fiche 0044 frame G 15 page 11783

Probable cause for failure of entries to consolidate: Variation in content of entry.

These examples illustrate the non-consolidation of entries due to the addition of a parallel title to one entry.

Entries 1A and 2A did not consolidate due to the parallel title embedded in the title field of Entry 2A.

The same problem caused the failure of Entries 1B and 2B to consolidate.

Example 5 - Multiple KWOC entries for the same serial

1. BEHAVIOR Research and Therapy
REGISTER 03738003

FULLERTON	CFLS	1,1963/1964;3,1965;(7),1969-
SONOMA	CRpS	8-,1970

2. BEHAVIOUR research and therapy
REGISTER 03742003 OCLC 1519349 ISSN 0005-7967.

BERKELEY	CU-BIOL	1,1963-
	CU-ED/P	1,1963-
DAVIS	CU-A	1,1963-
	CU-AM	1,1963-

LOS ANGELES

3. BEHAVIOUR Research and Therapy; an International Multidisciplinary Journal
REGISTER 03743000

SAN FRANCISCO	CU-M	1,1963-

1. KWOC fiche 0028
frame N 01
page 7276

2. KWOC fiche 0028
frame I 03
page 7301

3. KWOC fiche 0028
frame J 03
page 7302

Probable causes for failure of entries to consolidate: Variation in content of entry.
Variation in spelling.

This example illustrates the consolidation problem resulting from variations in spelling and content which prevented extraction of identical SKED keys from these three entries.

Entry 1 is listed under the key word BEHAVIOR while Entries 2 and 3 are listed under the key word BEHAVIOUR. Because the next word in the entry, "research", is a stop word, the only key word that lists all three entries is THERAPY. As a result, variant spelling has made it difficult for a user to locate all holdings for this serial title. Entry 1 is separated from Entries 2 and 3 by twenty-five pages of fiche.

Entry 3 contains a subtitle that is not included in Entries 1 and 2. Since the subtitle is embedded in the title field, it was extracted in the SKED key preventing consolidation with Entry 2.

Example 6 - Multiple KWOC entries for the same serial

1. ADVANCES in Environmental Science and Technology
REGISTER 00430100

DAVIS	CU-A	1,1970-
	CU-A	1,1970-
IRVINE	CU-I	8[-6,(1969-1975)•
LOS ANGELES	CLU-UBL	1-
RIVERSIDE	CU-RivA	2,1971-
SAN DIEGO	CU-SSe	1-(1969-)
	CU-SSI	1-(1969-)
SAN FRANCISCO	CU-M	1-4,1969-74
SANTA CRUZ	CU-SC	1,1969-

2. ADVANCES in Environmental Science & Technology
REGISTER 00430205

SANTA BARBARA	CU-SB	2,1971-

1. and 2. KWOC fiche 0004
frame 0 05
page 881

Probable cause for failure of entries to consolidate: Variation in recording conjunction.

This example illustrates the consolidation problem caused by the use of a symbol instead of a word. Identical SKED keys could not be extracted from Entries 1 and 2 because Entry 2 contains an ampersand in the place of the word "and".

Example 7 - Multiple KWOC entries for the same serial

1. JOURNAL of Clinical Pathology. Supplement (Assoc. Clin. Path.)
REGISTER 17784787
SAN FRANCISCO CU-B (1,1967-)
2. JOURNAL of Clinical Pathology. Supplement. (Association of Clinical Pathologists)
REGISTER 17784804
DAVIS CU-AM (2-5)1969-
CU-AM (2-5)1969-

1. and 2. KWOC fiche 0137
frame F 12
page 36754

Probable cause for failure of entries to consolidate: Variation in recording issuing body.

This example illustrates the consolidation problem caused by the use of abbreviations in recording names, e.g. issuing bodies, corporate authors, personal authors, etc.

The issuing body in Entry 1 is abbreviated while Entry 2 contains the full form of the name. As a result, matching SKED keys could not be extracted and the entries could not consolidate.

Example 8 - Multiple KWOC entries for the same serial

1. PROGRESS in Nuclear Energy. Series VI. Biological Sciences
REGISTER 26864607
BERKELEY CU-PUBL 2,1959

2. PROGRESS in Nuclear Energy. Series 6: Biological Sciences
REGISTER 26863008
BERKELEY CU-BIOL 1-3,1956-61
DAVIS CU-A 1,1956-
IRVINE CU-I-M 01-3(1956-61)

3. PROGRESS in Nuclear Energy. Series 06. Biological Sciences
REGISTER 26862700
SAN DIEGO CU-SM 1-3(1956-61)

1. and 2. KWOC fiche 0207
frame 0 02
page 55439

3. KWOC fiche 0207
frame P 02
page 55440

Probable cause for failure of entries to consolidate: Variation in recording numbered parts.

This example illustrates the problem of non-consolidation of serials issued in numbered parts due to the variety of ways in which numbers are recorded in the campus entries.

In Entry 1 the series is numbered with roman numerals. Although arabic numbering is used in both Entries 2 and 3, the Entry 2 series is numbered with a single digit up to 10, while the Entry 3 series is numbered with double digits (i.e. 01, 02, 03, etc.).

Variations in numbering such as in these three entries caused further problems in the sort sequence because the different ways of numbering would not interfile. Thus entries for Series II, III, IV, V. are listed together followed by entries for Series 1 through 12, which are followed by the entries for Series 06 through 09.

41

42

Example 9 - Multiple KWOC entries for the same serial

1. SAMMLUNG Geologischer Fuehrer
REGISTER 28721908
LOS ANGELES CLU-G/G 37,1958-
RIVERSIDE CU-RivA *
SANTA BARBARA CU-SB REFER TO CAMPUS

2. SAMMLUNG Geologischer Fuhrer
REGISTER 28722003
BERKELEY CU-BART 45,1966;47,1968-

1. and 2. KWOC fiche 0225
frame F 10
page 60376

Probable cause for failure of entries to consolidate: Variation in recording diacritics.

This example illustrates the consolidation problem caused by variations in recording diacritics, and inconsistent edit decisions regarding diacritics in the UCULS SKED program.

Several campuses substitute a set of double letters for a diacritic in recording foreign language entries. In Entry 1, the double letter "ue" in the word "Fuehrer" prevents the extraction of a matching SKED key with Entry 2. (The umlaut over the "u" in "führer" present in the Berkeley record was eliminated in the KWOC software processing. In the Register record below, the umlaut is displayed as an underscore.

In the specifications for the SKED, one of the edit decisions regarding diacritics was to recognize "für" and "fuer" as the same word "fur". Unfortunately this edit decision was not generalized to other words containing the same variation such as "fuhrer" and "fuehrer".

28722003--(035-Sa) UCULS NO.
Sammlung Geologischer F_uhrer (245-A -Sa)
(035- -Sb) 01511780:
(090-A -Sa) QE1.S22 Sc CU-sart
(500-A -Sa) The Library May Have Some Volumes Other Than Those Listed on This Card. These Volumes Have Been Cataloged Separately
008 (0-5) ENTERED 770924 (15-17) COUNTRY gw (18) FREQUENCY z (35-37) LANGUAGE ger

Register fiche 0126 frame K 10 page 033892

Example 10 - Multiple KWOC entries for the same serial

1A. U.S. National CANCER Institute. Information Bulletin REGISTER 36205100 RIVERSIDE CU-Riv 1971-DATE SANTA BARBARA CU-SB 1971- 2A. U.S. National CANCER Institute Informational Bulletin REGISTER 36205205 BERKELEY CU-PUBL 1971-	1A. and 2A. KWOC fiche 0045 frame H 03 page 11873
1B. JOURNAL of Ultrastructure Research. Supplement REGISTER 17979303 ISSN BERKELEY CU-BIOL 1,1959- IRVINE CU-I-MS 87-10,(1965-TO DATE) CU-I-M 8X10-11(1968-69) 2B. JOURNAL of Ultrastructure Research. Supplements REGISTER 17979406 SAN FRANCISCO CU-M 1,1959-	1B. and 2B. KWOC fiche 0138 frame K 11 page 37013

Probable cause for failure of entries to consolidate: Variations in wording.

These examples illustrate that even minor variations in word endings prevent entries for the same serial title from consolidating.

The SKED keys for Entries 1A and 2A did not match because of the difference in wording between "Information" and "Informational".

The SKED keys for Entries 1B and 2B did not match because the word "Supplement" in Entry 2B ends with an "s".

Example 11 - Multiple KWOC entries for the same serial

1. AMERICAN Medical Association. Journal
REGISTER 01649008
BERKELEY CU-BIOL 1,1883-
CU-PUBL For Issues Received,Consult

2. American Medical Association. Journal of the AMERICAN medical Association
REGISTER 01649105
SANTA CRUZ CU-SC 195,1966-

3. J A M A: Journal of the AMERICAN Medical Association
REGISTER 17361104
LOS ANGELES CLU-BIO 175,1961-

4. Journal of the AMERICAN Medical Association
REGISTER 17953103 OCLC 1480379
IRVINE CU-I-M 022-55(1904-1910).093-114(1929-40).0116-126(1941-44).0127m1,5,

1. and 2.	KWOC fiche	0012
	frame	G 11
	page	3115
3.	KWOC fiche	0013
	frame	B 09
	page	3349
4.	KWOC fiche	0013
	frame	109
	page	3356

Probable causes for failure of entries to consolidate: Variation in choice of entry.
Variation in form and content of entry.

This example illustrates variations in choice of entry for publications containing the name of the issuing body in the title of the serial. Entry 1 is the title of the serial inverted to create an author/title entry with brief title. Entry 2 is an author/title entry with a full title. Although both Entries 3 and 4 are title entries, Entry 3 begins with the acronym "JAMA". This wide variation in entry prevented the extraction of matching SKED keys for these four entries, and created a search problem for the user.

The entries do not file together, making it difficult for the user to locate all holdings for this serial. Although Entries 1 and 2 are on the same page, Entry 3 appears 234 pages later, followed 7 pages later by Entry 4. Additionally, Entry 3 is not listed under the key word JOURNAL which is a stop word extracted as a key word only when the first word of the author or title. Therefore, the user must search under the key word AMERICAN or under the key phrase MEDICAL ASSOCIATION to locate all four entries.

Example 12 - Multiple KWOC entries for the same serial

1. American Speech and Hearing Association. A.S.H.A. monographs
REGISTER 01847306 OCLC 1480855
RIVERSIDE CU-Riv 12,1965-
SANTA BARBARA CU-SB 12,1965-

2. ASHA Monographs
REGISTER 02842803
BERKELEY CU-BANC 1-10,1950-74//
DAVIS CU-AG 1,1950-

3. A.S.H.A Monographs. American Speech and Hearing Association
REGISTER 02842900
CSUCO CCChS N12-,1965-

1., 2., and 3. KWOC fiche 0021 frame I 02 page 5403

Probable cause for failure of entries to consolidate: Variation in choice and form of entry.

This example illustrates a common variation in cataloging when the issuing body is abbreviated in the title of the serial. Entry 1 is an author/title entry, Entry 2 is a title entry, and Entry 3 is a title entry with the issuing body included as part of the title data.

In the KWOC, Entry 2 will be found listed only under the key word ASHA because "Monographs" is a stop word extracted only when the first word of author or title. Entries 1 and 3 will be listed under all the words of the issuing body. Therefore, all three entries will be found listed together under only one of the six possible key words.

Example 13 - Multiple KWOC entries for the same serial

1. BOREAL Institute for Northern Studies. Occasional Paper
REGISTER 04374505
BERKELEY CU-BIOL 1,1964

2. University of Alberta, Edmonton. BOREAL Institute. Occasional Paper
REGISTER 37143502
BERKELEY CU-BIOL 1,1964?-

1. and 2. KWOC fiche 0034
frame C 14
page 9074

Probable cause for failure of entries to consolidate: Variation in choice of entry

This example illustrates the variation in choice of entry for a serial issued by the subordinate body of a larger institution. Entry 1 is entered under the subordinate body, "Boreal Institute for Northern Studies". Entry 2 is entered under the main body, "University of Alberta, Edmonton. Boreal Institute".

Example 14 - Multiple KWOC entries for the same serial

1. JOURNAL of Dentistry. REGISTER 17803004 LOS ANGELES CLU-810 1,1972/73- 2. JOURNAL of Dentistry REGISTER 17802708 DAVIS CU-AM 1,1972- SAN FRANCISCO CU-M 1,1972-	1. and 2. KWOC fiche 0137 frame 0 13 page 36778

Probable cause for failure of entries to consolidate: Final period at end of entry.

This example illustrates a problem of non-consolidation of entries that cannot be fully explained at this stage of analysis. Entries 1 and 2 probably did not consolidate because of the period at the end of Entry 1.

During extraction of the SKED Key from UCULS entries, all punctuation characters were converted to blanks (ß). Additionally, the text of each field used in the construction of the SKED Key was bracketed with a special character ULAP defined as a superblank (#).

Since the title in Entry 1 ends with a period, the SKED Key ends with both a blank and a superblank. However, the SKED Key for Entry 2 which contains no punctuation at the end of the title ends with just the superblank.

As a result, Entries 1 and 2 did not have matching SKED Keys and did not consolidate, i.e.

#JOURNAL OF DENTISTRY#ß#
#JOURNAL OF DENTISTRY#

Example 15 - Multiple KWOC entries for the same serial

1. JOURNAL of General Virology
REGISTER 17833208
DAVIS CU-A 1,1967-
CU-AM 1,1967-

2. JOURNAL of general virology
REGISTER 17833104 OCLC 1754603
BERKELEY CU-BIOC Current Only
CU-BIOL 1,1967-

1. and 2. KWOC fiche 0137
frame 0 16
page 36823

Probable cause for failure of entries to consolidate: CONSER record.

This example illustrates a problem of non-consolidation of records that can only be superficially explained at this stage of analysis.

Entries 1 and 2 appear to contain no barriers to extraction of matching SKED keys except that Entry 2 contains a CONSER record, determined by the existence in the entry of the OCLC number. This analysis has made it apparent that merging CONSER records with UCULS records caused significant consolidation problems. The difference in upper and lower case letters between the two entries probably was not a factor in the failure of the entries to consolidate because in the extraction of the SKED key all alphabetical characters were converted to upper case.

One further problem appears in the Register records. Both Entries 1 and 2 should end with a period. The omission of these periods from the KWOC entries is probably a display problem which would have no bearing on the non-consolidation problem.

1. 17833208--[035-8a] UCULS NO.
Journal of General Virology. [245-6 -8a]
[035- -8b] 10000000:10000100:13915500:C345970:819967111
[000-U 8-8a] CFS 8b PER./SR/360/J645

2. 17833104--[035-8a] UCULS NO. [035-8c] OCLC NO: 1754603
Journal of general virology. [245-000-8a]
[035- -8b] 81061910:81061920:81061950:S1689900:F3821-0000
[040-0 -8c] PAL
[000-A -8a] Uncatalogued 8c CU-BIOC

1. and 2. Register fiche 0080
frame P 05
page 021404

The foregoing examples illustrate a variety of consolidation problems. In many cases identical titles with varying entries are grouped together under key words, thus providing more of a nuisance than a loss of information. In other cases, locating all libraries holding for the same serial title becomes difficult when the varying entries become widely scattered in the alphabetical sort sequence. Therefore, the problem of incomplete consolidation must be resolved through standardization of input, improved computer matching algorithms, and editing in order to produce a truly useful bibliographic tool.

5.2 Problems with alphabetizing of key words and entries in the KWOC.

Inconsistent alphabetizing of key words and entries under key words is another drawback to effective use of the UCULS. The result of errors in alphabetizing is similar to the problems of incomplete consolidation in that the majority of entries incorrectly sorted are locatable under key words. However, there are serious failures in the sequence of entries under key words which represent a large number of titles. For example, the sort sequence of the many pages of entries under a key word such as UNESCO is confusing, because entries beginning with U N E S C O, UNESCO, Unesco, or United Nations Educational, Scientific, and Cultural Organization do not interfile even though they all are listed together under a single key word.

There were two separate sort programs involved in alphabetizing the key words and entries in the KWOC. One program sorted the key words and phrases. Another program sorted the KWOC entries under key words. This section deals with problems in alphabetizing UCULS entries. In particular the inconsistencies between the two sorting programs are detailed. Alphabetizing of keywords followed different and sometimes conflicting rules from the alphabetizing of entries under key words.

5.2.1 Specifications for alphabetizing key words and entries.

Sorting of machine-readable bibliographic files into a proper alphabetical sequence of entries is one of the most difficult tasks for automated processing. The standard computer sort is quite different from the library filing order. The standard IBM computer collating sequence is as follows: blanks first, followed by punctuation, lower case letters, upper case letters, and digits. Because this sorting order is unfamiliar to library

users, the KWOC program has facilities to take into consideration initial articles, geographic names, abbreviations and acronyms, numerals, punctuation, and diacritics. It was hoped that these facilities would result in sorting more similar to conventional library arrangements.

Unfortunately, the resulting order of both key words and entries in the KWOC is a confusing mixture of computer and library sorting orders. Again it appears that the root of the problem is the wide variation of the data in the UCULS entries. Some of the most obvious problems are described in the next two sections.

5.2.2 Alphabetizing acronyms and initialisms in the KWOC.

Acronyms and initialisms are handled inconsistently in the KWOC. Each alphabetical section of the KWOC begins with a note that states, "ACRONYMS AND INITIALISMS ARE FILED AS WORDS.". This statement is misleading because acronyms and initialisms appearing as key words are sorted word by word while those appearing in titles are filed letter by letter according to the computer sort algorithm. In Example 16 entries are filed under the Key Word AALL which is the initialism for the American Association of Law Libraries. Both A A L L and AALL were extracted as the key word AALL disregarding the spaces between the letters. However, these same initialisms sorted differently when filing as part of the entry.

Example 16 KWOC fiche 0001 Frame H01 Page 7

```
AALL
    A A L L Institute for Law Librarians. Proceedings
                REGISTER 00049600
        SAN DIEGO          CU-SCu    4-6(1959-63)
        SANTA BARBARA      CU-SB     5-6,1961-63
    A A L L Publication Series
                REGISTER 00049805
        DAVIS              CU-AL     1,1960-
    American Association of Law Libraries. A A L L Publications Series
                REGISTER 01261601
        LOS ANGELES        CLU-L     1,1959-
    AALL Publications Series
                REGISTER 00049906
        BERKELEY           CU-LSL    1,1960-
        LOS ANGELES        CLU-URL   1,1960-
        RIVERSIDE          CU-Riv    *
        SAN DIEGO          CU-SCu    *
```

5.2.3 Handling of initial articles in the KWOC.

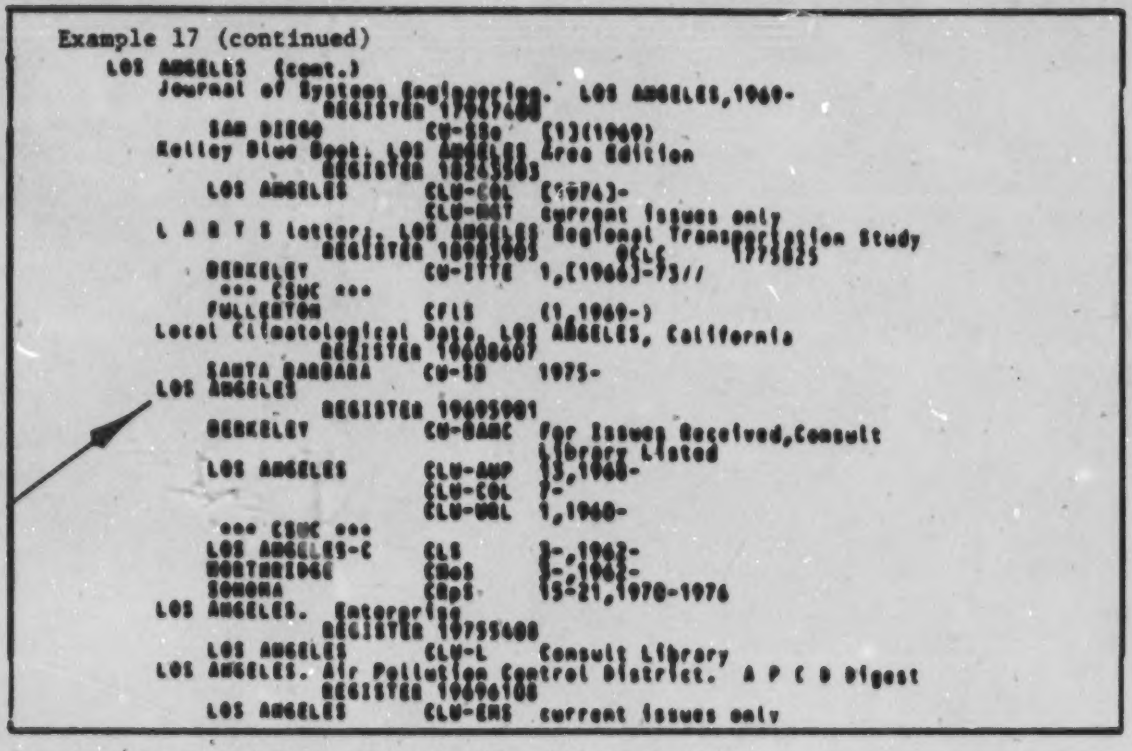
Initial articles such as "The" were to be ignored in the KWOC sort program, except for certain articles that have meaning in a foreign language or form part of a geographic name such as the "Los" in Los Angeles.

Unfortunately initial articles were not handled consistently. Example 17 illustrates the problem that occurred when Los Angeles was the first word of an entry listed under the key phrase LOS ANGELES. In the sorting of entries under this key word, the initial article "LOS" was sometimes ignored and Los Angeles entries filed under "A" for Angeles. At other times Los Angeles in other entries filed correctly under "L" for Los Angeles.

Example 17 KWOC fiche 0155 Frames P06-11 Pages 41512-87

```
    LOS ANGELES (cont.)
        American Federation of Musicians. Local Number 47, LOS ANGELES. Directory
                REGISTER 01440301
            LOS ANGELES         CLU-MUS  (1962-70)1972-
        American Institute of Aeronautics and Astronautics. LOS ANGELES Section
                REGISTER 01507109
            DAVIS               CU-A     1,1966-
            LOS ANGELES         CLU-EMS  1-
            SAN DIEGO           CU-SIo   •
        American Society for Information Science. LOS ANGELES Chapter. The Oasis
                REGISTER 01703509
            SANTA BARBARA       CU-SB    (6-8)1968-70
        American Society for Metals. LOS ANGELES Chapter. Directory and Yearbook
                REGISTER 01705208
            LOS ANGELES         CLU-EMS  current issues only
        American Society of Mechanical Engineers. LOS ANGELES Section. Officers,
                REGISTER 01831305
            LOS ANGELES         CLU-EMS  current issues only
        LOS ANGELES Annual Builders Guide
                REGISTER 1969620.
            SANTA BARBARA       CU-SB    25-27,1950-52;29-30,1955-57
        LOS ANGELES Architectural Club. Yearbook
                REGISTER 19696805
            SANTA BARBARA       CU-SB    1912-13
        LOS ANGELES Area Chamber of Commerce. Business Directory and Buyers Guide
                REGISTER 19696904
            IRVINE              CU-I     01971-1976,(1971-1976).
        LOS ANGELES Area Chamber of Commerce. Southern California Business Directo
                REGISTER 19697001
            IRVINE              CU-I     01973-1976,(1973-TO DATE).
            •
            •
            •
            •
```

Example continues on next page



Example 17 (continued)

LOS ANGELES (cont.)
Journal of Systems Engineering. LOS ANGELES,1969-
REGISTER 17017488
SAN DIEGO CU-SIO (1)(1969)
Kelley Blue Book. LOS ANGELES Area Edition
REGISTER 18215383
LOS ANGELES CLU-COL (1974)-
CLU-MAT current issues only
L A R T S letter. LOS ANGELES Regional Transportation Study
REGISTER 18003003 OCLC 1775825
BERKELEY CU-ENG 1,(1968)-73//
••• CSUC •••
FULLERTON CFLS (1,1969-)
Local Climatological Data. LOS ANGELES, California
REGISTER 19000607
SANTA BARBARA CU-SB 1975-
LOS ANGELES
REGISTER 19005001
BERKELEY CU-BANC For Issues Received,Consult
Library Listed
LOS ANGELES CLU-ANP 13,1968-
CLU-COL 7-
CLU-MUL 1,1968-
••• CSUC •••
LOS ANGELES-C CLS 3-,1962-
NORTHRIDGE CNor 1-,1967-
SONOMA CRpS 15-21,1970-1976
LOS ANGELES. Enterprise
REGISTER 19755408
LOS ANGELES CLU-L Consult Library
LOS ANGELES. Air Pollution Control District. A P C D Digest
REGISTER 19006108
LOS ANGELES CLU-EMS current issues only

5.3 Problems with key words and key phrases.

Stop words and key phrases were used to control the size and usefulness of the UCULS-77 by reducing redundancy and preventing commonly used words from accumulating too many entries for effective searching. This section deals with problems that occurred with the selection of stop words and the formation of key phrases. The intended benefits of using stop words and key phrases was markedly reduced because of errors and inconsistencies in their use. In this section stop words and key phrases are defined and the problems in their application are described in detail. (The complete list of stop words and the partial list of key phrases from the UCULS'77 Introduction are attached as Appendix A.)

Stop words are certain words which are identified in the KWOC software as having the potential for accumulating an unwieldy number of entries. These stop words are not extracted as key words except under certain conditions. Selective extraction of these words helps ensure that a known item search can be successfully completed by searching the author and/or title in the order of the catalog entry. The conditions for the extraction of stop words to form key words are as follows:

1. Key words extracted only when they occur as the first word of an entry, such as BULLETIN, MONTHLY, and YEARBOOK.

2. Key words extracted only when they occur as the first word of an author or any word of the title, such as AUSTRALIA, CITY, DELEGATION, and JOINT.

3. Key words extracted only when they occur as the first word of an author or title, such as ABOUT, AFFAIRS, INCORPORATED, and SUPPLEMENT.

Stop words are used as follows: the stop word STUDIES (type 1 above) is only extracted as a key word when it appears as the first word of an entry. Therefore, the serial Studies in Asian History and Development would be listed under the key word STUDIES, but the serial Journal of East Asiatic Studies would not be listed under the key word STUDIES.

Key phrases are composed of two or more adjacent words which are combined and searched as a unit in the KWOC. Generally one or more of the key words that make up a key phrase are very common words such as ACADEMIC, JUNIOR, RED, etc. which if listed alone would lose their significance as key words. ACADEMIC SENATE, BUENOS AIRES, JUNIOR COLLEGE, RED BLUFF, and WATER QUALITY are examples of key phrases. Entries listed under a key phrase will not be listed under the individual words of that phrase. For example, entries listed under the key phrase ACADEMIC SENATE should not be listed under the key words ACADEMIC or SENATE. Key phrases were added to the KWOC to allow searching under meaningful and commonly used combinations of words.

Significant problems occurred with the use of stop words and the formation of key phrases. These problems are described in the following sections and are outlined below:

5.3.1 Inconsistencies in the selection of stop words.

5.3.2 Problems in the formation of key phrases.

5.3.3 Creation of confusing SEE ALSO references from certain key phrases.

5.3.4 Errors in extraction of compound words as key phrases.

5.3.5 Inconsistencies in normalization of abbreviations in key phrases.

5.3.6 Extraction of misspellings as key words and key phrases.

5.3.7 Problems with extraction of key words and key phrases from CONSER records.

5.3.8 Unnecessary redundancy of entries in UCULS due to faulty key word and key phrase extraction.

5.3.1 Inconsistencies in the selection of stop words.

The list of stop words was created independently of the UCULS-77. Therefore, some stop words were added to the lists which were not found in any UCULS-77 entries under the three conditions described above. In addition there were other words which probably should have been included in the stop lists but were omitted.

For example, AARBOK, AARSBOK, ARBOK, and ARSBOK are all on the list of stop words extracted only when the first word of an entry. Of the four words, only ARBOK was used as a key word because the other three words did not appear as the first word of an entry in any UCULS record.

In contrast, HANDBOOK was overlooked as a stop word, although HANDBOOKS, HANDBUCH, and HANDBUCHER are on the stop word list of key words extracted only when the first word of author and title. One can find entries under the key word HANDBOOK over 77 pages of fiche, thus reducing its usefulness as a key word.

Another inconsistency occurred with compound words such as YEARBOOK which were often separated into two words (i.e., YEAR BOOK in UCULS entries). YEARBOOK and YEAR are both on stop word lists but YEAR BOOK is not. YEAR BOOK is also not on the key phrase list. As a result, all entries containing the words YEAR BOOK are listed under the key word BOOK, and under the key word YEAR when the first word of author or title.

5.3.2 Problems in the formation of key phrases.

Key phrases were generated by a computer program which scanned the individual words in the author and title fields, and combined words defined in the software as beginning words of phrases with the first significant word immediately following it. The character length limitation was twenty-five characters. Key phrases exceeding this length were truncated to twenty-four characters and the twenty-fifth replaced with an asterisk (i.e., AGRICULTURAL STABILIZATI*).

The resulting key phrase list was too long to be included in the UCULS'77 Introduction. Instead, an abbreviated list was included in the Introduction (Appendix A). Unfortunately, the phrases selected for the abbreviated list contained only logically connected words. Along with the logically connected phrases, however, there also appeared in the UCULS-77 such phrases as BUSINESS SAN, PUBLIC SECRET, PUBLIC WASHINGTON, and UNITED KINGDOM HAVING, which are

illustrated in Examples 18 through 21.

Example 18

In this example, the meaningless key phrase BUSINESS SAN was extracted instead of SAN FRANCISCO. Articles such as "of" were not extracted in the formulation of key phrases.

```
BUSINESS SAN
    Federal BUSINESS Of SAN Francisco
                REGISTER 11943600
        BERKELEY          CU-IGSL  1-5,1930-34//
```

Example 19

In this example, the non-adjacent words, "public" and "Washington" were combined to form the meaningless key phrase PUBLIC WASHINGTON instead of PUBLIC AFFAIRS. In this case, the only other place the user would find this entry in the KWOC is under the equally meaningless key word DC. As a result, for all practical purposes, this entry has been lost.

```
PUBLIC WASHINGTON
    PUBLIC AFFAIRS REPORT. (WASHINGTON, D.C.)
                REGISTER 26986400
        LOS ANGELES       CLU-MGT  1,1976-
```

Example 20

In this example, because punctuation and articles are ignored in key phrase extraction, the meaningless key phrase PUBLIC SECRET was formulated.

```
PUBLIC SECRET
    U.S. Secret Service. Report to the PUBLIC, THE SECRET Service
                REGISTER 36748606
        BERKELEY          CU-DOCS  1968-
```

Example 21

In this example, even though the key phrase was formulated correctly, it is doubtful that a user would think to search under UNITED KINGDOM HAVING.

UNITED KINGDOM HAVING
Great Britain. Ministry of Agriculture, Fisheries and Food. Food Standards.
Projects in the UNITED KINGDOM HAVING a Defense Aspect. Activities Report
REGISTER 13048409
DAVIS CU-A 1963-

Problems also occurred in the formation of three word phrases such as UNITED KINGDOM ATOMIC, UNITED NATIONS TREATY, and UNITED STATES MARITIME. Every time a three word phrase was formed, a two word phrase beginning with the second word (i.e. kingdom, nations, states) was incorrectly generated, such as KINGDOM ATOMIC, NATIONS TREATY, and STATES MARITIME. These incorrect partial key phrases were listed in the KWOC over a total of forty-one pages of fiche, as unused key phrases illustrated in Example 22.

Example 22

KWOC fiche 0141 Frames J13-L13 Pages 37849-51

KINGDOM ATOMIC (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD IN
KINGDOM BALANCE (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD IN
KINGDOM BRANCH (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD IN

KWOC fiche 0176 Frames N01-E02 Pages 47084-90

NATIONS TREATY (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD IN
NATIONS TRUST''SH• (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD
NATIONS UNITED (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD IN

KWOC fiche 0243 Frames P12-P14 Pages 65258-88

STATES MARINE (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD IN T
STATES MARINES (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD IN
STATES MARITIME (THIS WORD WAS NOT USED AS A KEYWORD - LOOK UNDER ANOTHER WORD IN

Three word phrases resulted from a selective extraction process which was triggered when the word "United" appeared in an entry. This process operated in the following manner:

1. "United" was a stop word extracted as a key word only when not followed by the word "kingdom", "nations", or "states".
2. When these words were adjacent in an entry, the key phrases UNITED KINGDOM, UNITED NATIONS, or UNITED STATES were formed.
3. These three phrases were treated as stop word phrases extracted when the last or only words of author or title.
4. In all other cases, the phrases were combined with the next word in the entry to form three word key phrases such as those listed above, i.e. UNITED KINGDOM ATOMIC, UNITED NATIONS TREATY, UNITED STATES MARITIME.

5.3.3 Creation of confusing SEE ALSO references from certain key phrases.

To aid the user in the use of key phrases, SEE ALSO references were added following the words that were also combined into key phrases. For example, following the key word URBAN, a reference was created stating as follows: URBAN (SEE ALSO URBAN DEVELOPMENT, URBAN DEVELPMENT (sic), URBAN AFFAIRS, URBAN STUDIES, ETC.). There were three specific problems with the creation of these SEE ALSO references.

First, even though the key word listing may be carried over many frames of fiche, the SEE ALSO reference is displayed only once, at the beginning of the list. For instance, the listings under the key word SOCIAL cover one hundred twenty-five consecutive frames of fiche. The SEE ALSO reference, however, is only displayed on the first frame as follows: SOCIAL (SEE ALSO SOCIAL DEVELOPMENT, BUSINESS SOCIAL, SOCIAL ISSUES, SOCIAL CANADA, ETC.).

Second, the user is not provided with a complete list of key phrases used, either in the fiche indexes or in the printed UCULS'77 Introduction. In the above example, if the user cannot find the serial under the key word SOCIAL, the SEE ALSO reference appears to imply that any combination of words is a possible access point. In a list as large as the UCULS-77, this could be a very cumbersome way of searching for a serial.

Third, some of the SEE ALSO references contain blind references to key phrases that were not used in the KWOC. As described in Section 5.3.6, misspelled key words and key phrases were edited out of the list after the SEE ALSO references were created. Thus the user is directed to a misspelled key

phrase such as URBAN DEVELPMENT which was deleted by a manual edit process.

5.3.4 Errors in extraction of compound words as key phrases.

Compound words, particularly geographic names and corporate names, were treated as key phrases in the key word extraction process. Words which were combined as key phrases were not to be extracted individually as key words, but in some cases words were extracted both individually and as key phrases.

For example, SAN FRANCISCO and LOS ANGELES should have been consistently extracted from entries as key phrases. Example 23, however, illustrates that FRANCISCO and ANGELES were also extracted individually as key words.

Example 23

KWOC fiche 0101 Frame G13 Page 27086

```
FRANCISCO (cont.)
    Biblioteca FRANCISCO de Aguirre,20.Coleccion Ciencias Politicas
                REGISTER 04120607
        RIVERSIDE          CU-RivA   *
    Bulletin of the *san FRANCISCO County Medical Society
                REGISTER 05235003
        IRVINE             CU-I-M    81-4(1928-31)v5n1-8,10-12(1933)
                                     v6n1-6,8-12(1933).87-20(1934-47
    Bulletin of the *san FRANCISCO Medical Society
                REGISTER 05235108
        IRVINE             CU-I-M    v31n2-6,9-11(1966),v32n1-2,8-
                                     12(1967),v33n2-4(1968).846-
                                     48(1973-75)
    Federal Business of San FRANCISCO
                REGISTER 11943608
        BERKELEY           CU-I65L   1-5,1930-34//
```

KWOC fiche 0015 Frame E01 Page 3770

```
ANGELES
    Air Pollution Foundation,los ANGELES.  Report
                REGISTER 00638909
        RIVERSIDE          CU-Riv    1-8,1954-55;11-13,1955-56;15-19
                                     1956-57;21,1957;25-75,1958;27,
                                     1959;29-34,1959-61
                           CU-RivA   1,1954;4,1955;6,1955;8-13,1955-
                                     56;15-32,1956-61
        SAN DIEGO          CU-SSI    1-33(1954-61)
    Allan Hancock Foundation for Scientific Research,los ANGELES.  Occasional P
                REGISTER 01104301
```

5.3.5 Inconsistencies in normalization of abbreviations in key phrases.

Normalization is the computer recognition of certain predictable variations in data. For example, the computer was programmed, for the purpose of key phrase extraction, to recognize U.S. as if it spelled United States. Three problems have been identified with the normalization process.

First, the normalization technique did not function if punctuation was omitted, i.e., U.S instead of U.S. In Example 24, U.S was extracted as the key word US instead of being normalized to United States in the entry U.S National Air Pollution Central Administration. Publication APTD. Since this entry does not appear under the correct key phrase UNITED STATES NATIONAL, it is lost to most users.

Example 24

KWOC fiche 0274 Frame F01 Page 73422

```
US  (cont.)
    U.S.Board on Geographic Names.  Decisions on Geographic Names in the U.S
                REGISTER 34542107
        RIVERSIDE           CU-Riv   1932-DATE INCOMPLETE
    U.S.Census Bureau.  Foreign Commerce and Navigation of the U.S
                REGISTER 34964102
        RIVERSIDE           CU-Riv   1821-DATE INCOMPLETE
    U.S.Education Office.  Biennial Survey of Education in the U.S
                REGISTER 35508503
        RIVERSIDE           CU-Riv   1916/18-1956/58 INCOMPLETE
    U.S.Fish and Wildlife Service.  Fishery Statistics of the U.S
                REGISTER 3572026.
        RIVERSIDE           CU-Riv   1939-67 INCOMPLETE
    U.S  . U.S. Bureau of th.  aus. Foreign Stat
                REGISTER 36126205
        BERKELEY            CU-DOCS  1949-
    US; A Paperback Magazine
                REGISTER 37298004
        DAVIS               CU-A     1,1969
        SANTA CRUZ          CU-SC    1-
    U.S National Air Pollution Control Administration.  Publication APTD
                REGISTER 36177106
        BERKELEY            CU-MAIN  *
```

KWOC fiche 0270 Frame C12 Page 72512

```
UNITED STATES NATIONAL  (cont.)
    U.S. NATIONAL Air Pollution Control Administration.  Publication
                REGISTER 36176904
        BERKELEY            CU-ITTE  [1,197]-
        RIVERSIDE           CU-RivA  *
    U.S. NATIONAL Air Pollution Control Administration.  Publication AP
                REGISTER 36177009
        BERKELEY            CU-ITTE  [47,1969]-
    U.S. NATIONAL Air Pollution Control Administration.  Report for Consultation
                REGISTER 36177202
        BERKELEY            CU-PUBL  1969-
```

Second, normalization was misapplied in certain situations. In Example 25, U.S.S.R. was normalized to the key phrase UNITED STATES S, while USSR without punctuation was treated correctly as the key word USSR.

Example 25 KWOC fiche 0271 Frame D16 Page 72838

```
UNITED STATES S  (cont.)
    Electric Technology U.S.S.R.
                    REGISTER 11101000        OCLC     1567708
        BERKELEY            CU-EWEI  1958-
        LOS ANGELES         CLU-ENS  1959-
        RIVERSIDE           CU-RivA  1966-
        SAN DIEGO           CU-SSe   1964-[1968]-[1971](1964-71)
        SANTA BARBARA       CU-SB    1958-
    Electric Technology U.S.S.R. English Translation
                    REGISTER 11101104
        DAVIS               CU-A     1958-
    Fauna of the U.S.S.R.: Dragonflies
                    REGISTER 11022601        OCLC     1360283
        SAN FRANCISCO       CU-M     [4,1950;6,1961]
    Institut zur Erforschung der U.S.S.R. Bulletin
                    REGISTER 10110403
        BAKERSFIELD         CBak     1-,1954-


USSR  (cont.)
    Oceanology USSR
                    REGISTER 24550403
        FRESNO              CFS      8-,1968-
        NORTHRIDGE          CNoS     1961-1964
        SACRAMENTO          CSS      1960-1964
        SAN JOSE            CSjU     5-,1965-
    Polymer Science U.S.S.R.
                    REGISTER 20461808
        LOS ANGELES         CLU-CHM  1,1960-
        SAN DIEGO           CU-SSe   1-(1960-)
        SANTA BARBARA       CU-SB    1,1960-
          *** CSUC ***
        NORTHRIDGE          CNoS     1-,1960-
    Polymer Science USSR.  English Translation
                    REGISTER 20461901
        DAVIS               CU-A     1,1959-
    Portraits of prominent USSR personalities
                    REGISTER 24533401        OCLC     1713638
        BERKELEY            CU-BEPE  1-4,1968-71//
```

Third, at least one common abbreviation was ignored in the normalization process. In Example 26, when the word "Saint" was abbreviated to St. as in St. Louis, this common abbreviation was not normalized. As a result, Saint Louis was extracted as a key phrase only when the word "Saint" was spelled out. When it was abbreviated to St. Louis, both ST and LOUIS were extracted as key words.

Example 26 KWOC fiche 0224 Frame L18 Page 60233

```
SAINT LOUIS
    Academy of Science of SAINT LOUIS. Memoires
                REGISTER 00199803
        SAN DIEGO          CU-SSI   2(1891)
    Academy of Science of SAINT LOUIS. Transactions
                REGISTER 00199900
        SAN DIEGO          CU-SSI   1-[30-31]53;56;76(1859-1956)
        SANTA BARBARA      CU-SB    [14]1904;[18]1909
    American Medical Journal. SAINT LOUIS
                REGISTER 01653300
        SAN FRANCISCO      CU-M     [6-31,1878-1903]
    Central Council of Social Agencies, SAINT LOUIS. Bulletin
                REGISTER 07645203
        BERKELEY           CU-IGSL  1,1919


                KWOC fiche 0241 Frame B12 Page 64706
ST
    Academy of Science of ST.Louis. Transactions
                REGISTER 00200106
        RIVERSIDE          CU-Riv   REFER TO CAMPUS
    Akademiia Nauk, Leningrad. Bulletin de L'Academi
                REGISTER 00734007
        SANTA CRUZ         CU-SC    1-4,1980-94
    Akademiia Nauk, Leningrad. Melanges Mathematique
    ST. Petersbourg
                REGISTER 00734504
        SANTA CRUZ         CU-SC    1-7,1849-94


                KWOC fiche 0155 Frame I12 Page 41655
LOUIS
    Academie des Beaux-arts, Paris. Proces-verbaux de l'Ac
    francais sous le Patronage de l'Academie des Beaux-arts
                REGISTER 00753908          OCLC    1695508
        SANTA BARBARA      CU-SB    1-3,1795/1800-1806/10
    Academy of Science of St.LOUIS. Transactions
                REGISTER 00200106
        RIVERSIDE          CU-Riv   REFER TO CAMPUS
    The Annals of Ophthalmology, St. LOUIS
                REGISTER 32035607
        BERKELEY           CU-OPTO  7-26,1898-1917//
    Annals of Ophthalmology(St. LOUIS,1897-1917)
                REGISTER 02121703
        SAN DIEGO          CU-SM    10-[13][17]-26(1901-17)
```

5.3.6 Extraction of misspellings as key words and key phrases.

Key words were extracted from campus entries exactly as received in the translated tapes. Misspelled or mis-keyed words extracted as key words were not edited (Example 27).

Example 27

```
                        KWOC fiche 0015  Frame P02  Page 3796

ANGLELES
    California. University, Los ANGLELES. Dept. of Anthropology.
                    REGISTER 06670306
        BERKELEY            CU-IGSL   (7-19)
    California. University, Los ANGLELES. Graduate School of Educ
                    REGISTER 06670401
        IRVINE              CU-I      U17,(1974-1974)+


                        KWOC fiche 0208  Frame E09  Page 55803

PSHCHOLOGY
    Journal of Social PSHCHOLOGY,
                    REGISTER 17957505
        SANTA CRUZ          CU-SC     1-32;33-

                        KWOC fiche 0230  Frame P13  Page 61776

SECRETARY
    Rowell (Ter.) Governor.  Annual Report to the SECRETARY of the Interior
                    REGISTER 14552500
        DAVIS               CU-A      1949/50-1958/59
```

Obvious misspellings were manually edited out of the key phrase list by ULAP. Unfortunately, this editing was done after the generation of the KWOC display. Example 28 illustrates that SEE ALSO references were created automatically for misspelled phrases. Further investigation shows that the errors of misspelling were compounded. The references to SOCIAL AFFARIS (sic) and PUBLIC AFFARIS (sic) are blind references because these misspellings were manually deleted from the key phrase list. Consequently the entries which caused the generation of SEE ALSO references to SOCIAL AFFARIS and PUBLIC AFFARIS are not accessible because the KWOC program would not allow them to be listed under the individual words of the key phrases, i.e., SOCIAL, PUBLIC, or AFFARIS.

Example 28

```
                        KWOC fiche 0005  Frame K01  Page 1086
AFFAIRS  (SEE ALSO SOCIAL AFFAIRS, PUBLIC AFFAIRS)
    Events. a Monthly Review of World AFFAIRS
                REGISTER 11717905
        NORTHRIDGE          CNoS      1-9,1937-1941
        SAN DIEGO-C         CSdS      1-2,1937.(3-6,1938).5-9,1939-19
        SAN FRANCISCO-C     CSfSt     5-9,1939-1941
    World Today. Royal Institute of International AFFAIRS
                REGISTER 38928704
        CHICO               CChiS     1-,1945-
        DOMINGUEZ HILLS     CDhs      20-,1964-
        FRESNO              CFS       1-,1945-
```

5.3.7 Problems with extraction of key words and key phrases from CONSER records.

Serious problems existed with the extraction of key words and key phrases from UCULS records matched with CONSER records. For example, Journal of Academic Librarianship will be found only under the key word JOURNAL. "Academic" and "Librarianship" were not extracted as key words. Again, Annual handbook for group facilitators will be found only under the key word ANNUAL, the least likely word a user would use to search under. The other four words of the title were not extracted as key words.

Some CONSER records had more than one word extracted but it is doubtful that any CONSER record had all the words in the author or title extracted as key words.

One case has been identified in which none of the words were extracted. The Interlibrary Loan Service at San Francisco State University reported that the serial Behavioral Science was found in the The California State University and Colleges Union List of Periodicals but not in the UCULS. Because the Register is sorted by SKED key and approximates alphabetic order, it was possible to locate this title in the Register. The consolidated UCULS record for this serial contains records from all nine UC campuses and nine of the CSUC campuses, and CONSER. The title, however, cannot be found in the KWOC.

5.3.8 Unnecessary redundancy of entries in the UCULS due to faulty key word and key phrase extraction.

One of the purposes of the key phrase program was to reduce the size of the UCULS by combining two or more words into a single phrase so that large listings under a single key word would not occur. Faulty extraction of key phrases and key words defeated this purpose. Example 29 illustrates this problem. The key phrase UNITED STATES SECRET was extracted from entries containing the words "U.S. Secret Service". However, the same U.S. Secret Service entries are also listed under the key word SECRET.

Example 29

KWOC fiche 0271 Frame J16 Page 72844

UNITED STATES SECRET
U.S. SECRET Service. Annual Report of the Chief of the Secret Service Division
REGISTER 36748509
BERKELEY CU-DOCS 1908/09-1915/16
U.S. SECRET Service. Equal Employment Opportunity Affirmative Action Plan
REGISTER 36748406
BERKELEY CU-DOCS 1975/76-
U.S. SECRET Service. Know Your Money; How to Know Counterfeit Money, What to Do
Government Checks
REGISTER 36748503
BERKELEY CU-DOCS 1960-
U.S. SECRET Service. Report to the Public, the Secret Service
REGISTER 36748606
BERKELEY CU-DOCS 1968-

KWOC fiche 0230 Frame P13 Page 61776

SECRET (SEE ALSO PUBLIC SECRET)
France. Journal Officiel. Chambre des Deputes. Comite SECRET
REGISTER 12811502
BERKELEY CU-DOCS 1916-17
Great Britain. Foreign Office. Indexes to the "Green" or SECRET Papers among t
Now Preserved in the Public Record Office
REGISTER 13899806
BERKELEY CU-DOCS 1939-
Humour SECRET
REGISTER 15132104
BERKELEY CU-MAIN 1,1963-
Top SECRET(Cambridge, Mass.)
REGISTER 33118100
SAN DIEGO CU-SCu M
U.S. Continental Congress. SECRET Journals of the Acts and Proceedings of Cong
Dissolution of the Confederation
REGISTER 33107408
BERKELEY CU-MAIN 1-4,1820-21
U.S. SECRET Service. Annual Report of the Chief of the Secret Service Division
REGISTER 36748509
BERKELEY CU-DOCS 1908/09-1915/16
U.S. SECRET Service. Equal Employment Opportunity Affirmative Action Plan
REGISTER 36748406
BERKELEY CU-DOCS 1975/76-
U.S. SECRET Service. Know Your Money; How to Know Counterfeit Money, What to Do
Government Checks
REGISTER 36748503
BERKELEY CU-DOCS 1960-
U.S. SECRET Service. Report to the Public, the Secret Service
REGISTER 36748606
BERKELEY CU-DOCS 1968-

5.4 Case Study 1: Searching for a serial in the KWOC.

The problems and errors that have been detailed in the previous sections of this analysis are of major concern because of the barriers they pose to successful searching in the KWOC. A successful search should result in the user finding all UC or CSUC locations for a given serial.

The case study that follows illustrates the effect of multiple problems in the use of the UCULS-77 KWOC as a finding list.

Assume that the user is looking for the serial, Guide to U.S. Government Serials and Periodicals by John Adriot. The user may or may not know that the serial has a personal author. There are four records for this serial in the KWOC that did not consolidate:

(Key words and key phrases extracted are underlined)

1. Andriot. Guide to U. S. Government Serials and Periodicals
2. Andriot, John L. Guide to United States Government serials and periodicals. (This is a CONSER record consolidated with campus records.)
3. Guide to U.S. Government Serials and Periodicals
4. Guide to U.S. Government Serials & Periodicals

There is only one key word that will turn up all four entries - the key word GUIDE. At least one of the entries will be missing from each of the listings under the other key words or phrases.

Variant cataloging has made two of the entries author entries, and two are title entries. The user will have to look in two places even under the key word GUIDE, because two of the entries will sort in the "A's" and two will sort in the "G's".

Key word extraction was incomplete for two of the entries. From entry 1, the "U. S." was omitted from key word extraction. It should have been extracted as part of the key phrase UNITED STATES GOVERNMENT. Instead, the word "government" was extracted incorrectly as a key word. Entry 2 contains a CONSER record and both "serials" and "periodicals" were not extracted as key words.

If all the entries were author entries, or all the entries were title entries, the user's chances of finding all four serial entries would be improved. If KWOC program bugs were eliminated, the user's chances would also improve.

5.5 Case Study 2: Searching for a United States entry in the KWOC.

Although government documents are notoriously difficult to control bibliographically, the extent of errors and problems that occurred and the range of variant cataloging is still surprising.

Merely identifying all the variant entries for United States agencies is a difficult task. For instance, the following variations are found in the KWOC for the U.S. Bureau of the Census:

Bureau of the Census
United States. Bureau of the Census
United States.Bureau of the Census
U.S. Bureau of Census
U.S. Bureau of the Census
U.S.Bureau of the Census
U.S.Census Bureau

Entries containing the above variations are scattered among six key words and phrases. U.S. Bureau of the Census entries are listed under UNITED STATES BUREAU and CENSUS as expected. In addition, due to variations in cataloging some entries will be listed under BUREAU and UNITED STATES CENSUS. Due to program bugs entries will also be found listed under UNITED STATES and US.

The five variations that begin with U.S. or United States Bureau are all listed under the key phrase UNITED STATES BUREAU. However, the listing is very lengthy since every other government agency that begins with U.S. Bureau (U.S. Bureau of Mines, Reclamation, etc.) is also listed there. Because these five different entries sort separately due to variations in punctuation and spacing and abbreviation, they are widely separated. In Example 30, the first entry is listed under the key phrase UNITED STATES BUREAU on KWOC fiche 0266, page 71519, while the second entry is listed 138 frames later on KWOC fiche 0267, page 71657.

Example 30 KWOC fiche 026(Frame 017 Page 71519

```
UNITED STATES BUREAU (cont.)
    UNITED STATES.BUREAU of American Ethnology. Anthropological Papers
                REGISTER 34577208
        IRVINE          CU-I    SEE CAMPUS FOR HOLDINGS
        SAN DIEGO       CU-SCu  1-(1938-)
    UNITED STATES.BUREAU of American Ethnology,River Basin Surveys.Papers. Int
                REGISTER 34577809
        SAN DIEGO       CU-SCu  1-7;9-38(1953-64)
    UNITED STATES.BUREAU of Fisheries. Fisheries Document
                REGISTER 34414008
        SAN DIEGO       CU-SSI  402-404;413;417;422;433;436;439
                                [illegible]
                                [illegible]
                                [illegible]
                                [illegible]
                                [illegible]
                                [illegible]
                                [illegible]
                                [illegible]
                                1002;1008(1964-31)
    UNITED STATES.BUREAU of Fisheries. Report of the Commissioner of Fisheries
                REGISTER 34413501
        SAN DIEGO       CU-SSI  1871-1930(1871-1930)
    UNITED STATES.BUREAU of Labor, Special Report
                REGISTER 34403902
        SAN DIEGO       CU-SCu  9(1897)
    UNITED STATES.BUREAU of Medicine and Surgery. Annual Report of the Surgeon
                REGISTER 34693400
        SAN DIEGO       CU-SM   1879-1884;1886-1932(1879-1932)
    UNITED STATES.BUREAU of Medicine and Surgery.Statistical Report of the Surge
                REGISTER 34694805
        SAN DIEGO       CU-SM   1932-1939;1942;1947-1950;1952;
                                1962;1964;1966-(1932-)
    UNITED STATES.BUREAU of the Census. Census Monograph
                REGISTER 34801508
        RIVERSIDE       CU-Riv  *
```

KWOC fiche 0267 Frame D09 Page 71657

```
UNITED STATES BUREAU (cont.)
    U.S. BUREAU of the Census. Census Atlas Maps of Latin America
                REGISTER 34801101
        BERKELEY        CU-MAPS 1-2
    U.S. BUREAU of the Census. Census Bureau Methodological Research
                REGISTER 34801304
        BERKELEY        CU-INSL 1963-
    U.S. BUREAU of the Census. Census Bureau Statistical Poliy
                REGISTER 34801409
        BERKELEY        CU-DOCS 1-20,1965//
    U.S. BUREAU of the Census. Census Monographs
                REGISTER 34801605
        BERKELEY        CU-DOCS 1-11,1922-31
    U.S. BUREAU of the Census. (1920) Census Monographs
                REGISTER 34790301
        BERKELEY        CU-DOCS 1-11,1922-31
```

A large portion of the UCULS-77 is devoted to listing United States agency publications. In future editions, this section is bound to grow larger due to conversion of retrospective records and addition of more government documents records to campus data bases. Consequently, the resolution of the problems outlined in this section is imperative for future UCULS editions.

6.0 UCULS-77 Register.

6.1 Introduction to the Register.

One purpose of the Register was to provide a means of evaluating the UCULS-77. By providing the full information in the UCULS master file, the Register makes it possible to identify and analyze inconsistencies in the UCULS-77 KWOC. Additionally, preparation of the Register was an experiment in the usefulness of displaying and accessing bibliographic information in the index/register format.

A unique Register Index Number was assigned to each record in the UCULS master file. Register records display, in the UCULS MARC-like format, all available bibliographic data contained in the master file of merged and consolidated UC, CSUC, and CONSER records. In contrast, the KWOC entry contains only the main entry and/or title, campus holdings, Register Index Number, and when available, the CONSER OCLC Number, LCCN, and ISSN.

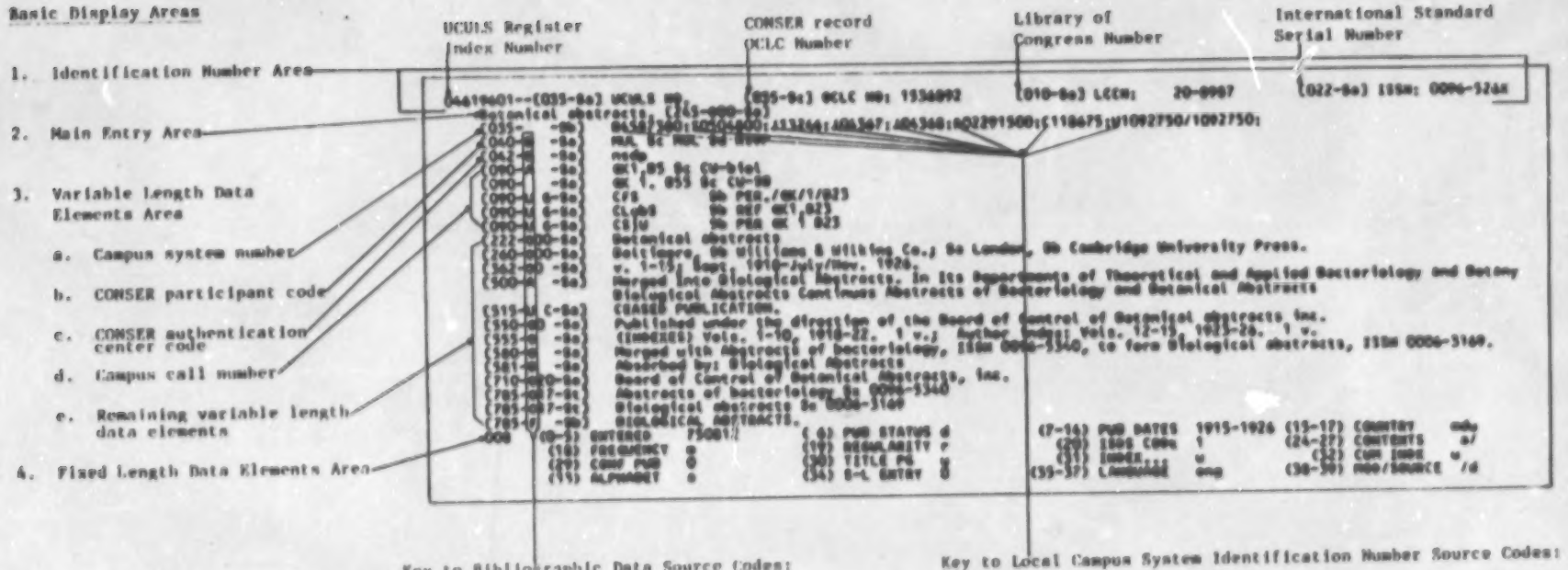
The Register is arranged in ascending Register Index Number order. Primary access is through the KWOC. The entries in the Register are in SKED key order and may also be accessed alphabetically. However, because the SKED order does not provide a library filing order, an alphabetical approach is not recommended except as a supplemental approach.

A sample record, a key to data elements contained in the Register record, and a description of the major elements are included in the next section.

6.2 Key to data elements in sample Register record.

6.2.1 Sample Register record. (see next page)

SAMPLE REGISTER RECORD


Basic Display Areas
1. Identification Number Area
2. Main Entry Area
3. Variable Length Data Elements Area
a. Campus system number
b. CONSER participant code
c. CONSER authentication center code
d. Campus call number
e. Remaining variable length data elements
4. Fixed Length Data Elements Area
UCULS Register Index Number
CONSER record OCLC Number
Library of Congress Number
International Standard Serial Number
Botanical abstracts.
Baltimore, Wm Wilkins & Wilkins Co.; Se London, Sb Cambridge University Press.
Merged into Biological Abstracts. In its Departments of Theoretical and Applied Bacteriology and Botany
Biological Abstracts Continues Abstracts of Bacteriology and Botanical Abstracts
CEASED PUBLICATION.
Published under the direction of the Board of Control of Botanical abstracts, Inc.
Merged with Abstracts of bacteriology, ISSN 0096-5340, to form Biological abstracts, ISSN 0006-3169.
Absorbed by: Biological Abstracts
Board of Control of Botanical Abstracts, Inc.
Abstracts of bacteriology Se 0096-5340
Biological abstracts Se 0006-3169
BIOLOGICAL ABSTRACTS.

Key to Bibliographic Data Source Codes:

A - U.C. Berkeley
B - U.C. Santa Barbara
C - U.C. San Francisco
D - U.C. Los Angeles
E - U.C. San Diego
F - U.C. Riverside
G - U.C. Irvine
H - U.C. Santa Cruz
I - U.C. Davis
O - CONSER
U - California State University and Colleges

Key to Local Campus System Identification Number Source Codes:

A - U.C. Los Angeles
B - U.C. Berkeley
C - U.C. Santa Cruz
D - U.C. Davis
F - U.C. San Francisco
I - U.C. Irvine
J - U.C. San Diego
R - U.C. Riverside
S - U.C. Santa Barbara
U - California State University and Colleges

6.2.2 Key to data elements.

Register records are displayed in a special format with each data element identified by MARC tags. The majority of data elements in a Register record are identified by standard MARC tags as provided for in the publication Serials: A MARC Format. Additional non-standard MARC tags may also be present when received in UC input files.

The data elements are arranged within each Register record in numerical order by field tag with two exceptions. What were judged to be the most used data elements are displayed first (Register Index number, CONSER OCLC Number, ISSN, and main entry and/or title), while the 008 fixed field is displayed last.

Bibliographic data was transcribed exactly as it appeared in the UCULS-77 master file records with the exception of diacritics. Due to a limitation of the COM vendor, diacritics could not be printed. Diacritics are retained in the master file but are replaced in the Register display by an underscore, e.g. Fran_caise instead of Française.

The Register display was divided into four basic areas (See section 6.2.1, Sample Register record).

Display area 1. Identification number area

For ease in identifying Register entries, selected identification numbers from the 035, 010, and 022 fields are displayed on the first line of the Register record. The Register Index Number is always displayed first, followed when available by a CONSER OCLC number for records containing bibiliographic data from a CONSER record, then the LCCN and ISSN if available. Each identification number is displayed with the appropriate field tag and subfield code.

If more than one CONSER record has been consolidated into a UCULS record, the additional CONSER OCLC numbers are displayed in the main body of the record in subfield c of the 035 field.

The LCCN (010) and ISSN (022) are displayed once. When two or more records consolidated, even if each record contained an ISSN, the single resulting UCULS record would display only one ISSN from the first record entered into the master file. The other ISSN would not be displayed in either the KWOC or Register records.

It was assumed that the duplication of this data would be unnecessary since the records in a consolidated UCULS record would all have exactly the same data in this field.

In the sample record, the first line of the record contains four selected identification numbers:

UCULS Register Index Number - 04619601
CONSER Record OCLC Number - 1536892
Library of Congress Number - 20-8987
International Standard Serial Number - 0096-526X

Display area 2. Main entry and title area

Main entry (1XX) and full title (245) fields were left justified and followed by the appropriate source code, indicators, and subfields. In addition to the 010 and 022 fields, duplication of data was not permitted by the program in the main entry and title fields, again because it would be redundant to repeat identical data. (See Section 3.4)

Source codes were added to each field tag in the first indicator position to identify the origin of the bibliographic data. In the sample record, the 500 field tag is followed by the source code "A" which identifies the source of this note as UC Berkeley:

[500-A -$a]

CONSER records are the only UCULS records in full MARC format using all appropriate indicators. When a CONSER record is the source record, the indicators are moved one position to the right to make room for the source code. This can be seen in the sample record in which the "0" is the source code for a CONSER record:

Botanical abstracts. [245-00-$a]

The key to bibliographic source codes is on the sample Register record page (Section 6.2.1).

Display area 3. Variable length data elements area

a. Campus system numbers [035]

This field was used for the display of three data elements: the Register Index Number in subfield a; the campus system number in subfield b, and the CONSER OCLC number in subfield c.

The Register Number and the OCLC number were extracted and displayed on the first line of the record as discussed in Display area 1.

Campus system numbers refer to the identification numbers assigned to records in the UC and CSUC machine readable serials files. These numbers are retained and displayed in the main body of the UCULS record. The system number is preceded by a source code which is different from the source code used to identify bibliographic data. The complete list of campus system number source codes is on the sample Register record page (Section 6.2.1).

In consolidated UCULS records, the campus system number for each UC or CSUC record is displayed separated by colons.

In the sample record, the 035 field contains eight campus system numbers which means that the following UC and CSUC records consolidated with a CONSER record to form the UCULS record:

U.C. Berkeley - B4587380
U.C. Santa Barbara - S0504800
U.C. San Diego - J13246
" J04367
" J04368
U.C. Riverside - R02291500
U.C. Santa Cruz - C118675
California State University and Colleges - U1092750/1092750
(this number represents the combined CSUC holdings)

b. CONSER participant code [040]

This MARC field contains cataloging source codes for CONSER participants. Both NUC and CONSER codes are sometimes displayed in this field due to an inconsistency in the CONSER data base tapes. The following is a list of CONSER participant codes:

AGL - National Agricultural Library
BTI - Boston Theological Institute
COO - Cornell University
DLC - Library of Congress

FUL - Florida Union List
HUL - Harvard University
MUL - University of Minnesota
NLC - National Library of Canada
NLM - National Library of Medicine
NSD - National Serials Data Program
SUL - State University of New York
UCU - University of California
YUS - Yale University

In the sample record the 040 field is as follows:

[040-0 $a] MUL $c MUL $d NSDP

This means that the University of Minnesota was both the original cataloging agency ($a) and the transcribing agency ($c), and that the record was modified by the National Serials Data Program ($d).

c. CONSER authentication center codes (042)

This MARC field contains codes for centers of bibliographic responsibility when the records have been authenticated. The following codes are used:

nlc : National Library Canada
lc : Library of Congress
isds/c : ISDS/Canada
nsdp : National Serials Data Program

In the sample record, the 042 field contains the code "nsdp" which means that the record has been authenticated by the National Serials Data Program.

d. Campus call number [090]

Call numbers are displayed in this field when the information was available in the UC or CSUC records. The holding library can be determined by the NUC code immediately before or after the call number. The list of NUC codes for UC and CSUC libraries from the UCULS '77 Introduction is in Appendix A.

In the sample record, five call numbers from the following libraries are displayed:

[090-A -$a] QK1.B5 $c CU-Biol
UC Berkeley Biology Library

[090- -$a] QK 1. B55 $c CU-SB
UC Santa Barbara Library

[090-U G-$a] CFS $b FER./QK/1/B23
CSU Fresno Library

[090-U G-$a] CLobS $b REF QK1.B23
CSU Long Beach Library

[090-U G-$a] CSjU $b PER QK 1 B23
San Jose State University Library

Although the bibliographic source code was inadvertently omitted following the 090 field tag for the call number from Santa Barbara, the NUC code provides an alternate source code.

Although the call numbers show the location of a serial, detailed holdings are listed only in the KWOC.

e. Remaining variable length data elements

All remaining bibliographic data with field tags assigned are displayed with source codes in this area of the Register record. The source codes are the same as those used to identify the source of the main entry and/or title. The key to bibliographic data source codes is on the sample record page.

In the sample record, the remaining variable length data elements range from Key Title (222 field) to Succeeding Entry (785 field).

Display area 4. Fixed length data elements [008]

The data elements comprising the 008 field are a composite of the data in the individual records comprising a consolidated UCULS record. Thus, the 008 field consists of the 008 field of the source or base record to which are added data elements from other records to replace base record data elements that are blank. The data in the 008 field are not identified as to source, since they could come from multiple sources.

The 008 field display is similar to the OCLC/CONSER display with each

fixed data element identified by a fixed field character position and brief mnemonic. Character positions 0 through 5 contain the date a record entered the CONSER file for CONSER records, or the date entered in the UCULS-77 for UC and CSUC records. In the sample record, the dates in character positions 0-5 indicate that this record entered the CONSER data base August 12, 1975:

(0-5) ENTERED 750812

6.3 Using the Register for analysis of problems in the UCULS-77.

This section presents examples of using the Register as a tool for the analysis of consolidation errors and problems with the UCULS programs.

The Register records contain all bibliographic data from the master file of UCULS records in SKED key order. Although the KWOC can be used to identify manifestations of problems, the KWOC entry contains insufficient data for a detailed analysis of errors. Thus, the Register and the KWOC are used in conjunction to trace errors and problems to their probable source.

6.3.1 Analysis of consolidation problems.

Examples 31 through 33 on the following pages illustrate the use of the Register in the analysis of three typical problems:

1. Faulty extraction of initial articles to form SKED keys
2. Non-consolidation of records
3. Incorrect consolidation of records

Example 31 - Faulty extraction of initial articles to form SKED keys identified in the Register

1A. 08975802--(035-Sa) UCULS #0.
Comparative History of Literatures in European Languages (245-A -Sa)
(035- -Sb) 01272822;
(090-A -Sa) Call # Varies Sc CU-main
(260-A -Sa) Paris
008 (0-5) ENTERED 770917 (15-17) COUNTRY fr (18)

1A. Register fiche 0041
frame K 10
page 010945

2A. 00015405--(035-Sa) UCULS #0.
A Comparative History of Literatures in European Languages. (245-A -Sa)
(035- -Sb) 00[illegible];
008 (0-5) ENTERED 770917

1B. Register fiche 0001
frame P 01
page 000015

1B. 28591500--(035-Sa) UCULS #0.
S A E Journal of Automotive Engineering (245-B -Sa)
(035- -Sb) 02648100;
(090- -Sa) TL 1. S5 Sc CU-SB
(260-B -Sa) New York
(774-B -Sb) S A E Journal
008 (0-5) ENTERED 770924 (15-17) COUNTRY nyu

2A. Register fiche 0126
frame N 02
page 033775

2B. 32717702--(035-Sa) UCULS #0.
The S A E journal of automotive engineering. (245-H -Sa)
(035- -Sb) C495370;
008 (0-5) ENTERED 770924

2B. Register fiche 0143
frame N 02
page 038350

These examples illustrate the faulty extraction of initial articles "A" and "The" to form SKED keys, resulting in the non-consolidation of records in the UCULS-77.

Since the Register is in SKED key order, it is possible to identify records for the same serial title which are out of proper sort sequence.

Titles 1A and 2A did not consolidate because the initial article "A" in entry 2A was extracted to form the SKED key for that title, thus making the SKED keys for the two entries different.

Example 32 - Non-consolidation of records identified in KWOC and Register

1. GUIDE to U.S. Government Publications
REGISTER 14210884
BERKELEY CU-DOCS 1973-
CU-DOCS 1975-

2. GUIDE to U.S. Government publications
REGISTER 02005001 OCLC 1779379
DAVIS CU-A 1973-
CU-A 1975-

1. and 2. KWOC fiche 0111
frame D 05
page 29653

2. 02005001--(DBS-Sa) UCAL# NO. (DBS-Sc) OCLC NO: 1779379
Andriot, John L. (100-01 -Sa) Guide to U.S. Government publications. (245-000-Sa)
(DBS- -Sb) I0[illegible]
(DLO-0 -Sc) MAL
(260-001-Sa) McLean, Va.. Sb Documents Index.

2. Register fiche 0010
frame L 05
page 002501

1. 14210884--(DBS-Sa) UCAL# NO.
Guide to U.S. Government Publications (245-A -Sa)
(DBS- -Sb) [illegible]
(DLO-A -Sa) J49.27GB Sc CU-docs
(DLO-A -Sa) J49.27GB Sr CU-docs

1. Register fiche 0064
frame M 04
page 017066

Entries 1 and 2 did not consolidate because of a variation in choice of entry: the first was entered under title and the second under author, John L. Andriot. In the Register, the two entries are listed under title and author as they exist in the master file. However, in the KWOC, both entries are listed under the title because the KWOC program does not recognize the 100 (personal author) field found in the CONSER record which is the source record for Entry 2.

In this case, failure of these entries to consolidate cannot be explained by looking at the KWOC entries alone. The Register, with the complete bibliographic data from the master file, must be used in the analysis.

Example 33 - Incorrect consolidation of records identified in the Register

```
37798701--(035 -$a) UCULS MB.      (035-$c) OCLC NO: 2242003      (010-$a) LCCN:    75-644692      (022-$a) ISSN: 0382-0424
    Vision. (245-000-$a)
    (035-   -$b)   $$3240300:$$3240300:$$3240400:$$3240200:A0040548:17258500:938298111:U6727900/6727900:U6728000/6728000: $c
                   2209305,2274996,2160941,2254334,2804592
    (040-0  -$a)   CaOONL $c CaOONL
    (040-0  -$a)   CaOONL $c CaOONL
    (040-0  -$a)   NIC $c NIC                                                                    Register  fiche 0165
    (040-0  -$a)   PER                                                                                     frame L 15
    (040-0  -$a)   CaOONL $b eng $c CaOONL                                                                 page 044498
    (041-00 -$a)   freeng
    (042-0  -$a)   lc
    (042-0  -$a)   nic $a isds/c
    (042-0  -$a)   nic $a isds/c
    (042-0  -$a)   nic $a isds/c
    (050-000-$a)   MF10 $b .V57
    (055-001-$a)   MB1
    (082-0  -$a)   330.9/4/055
    (090-   -$a)   AP 1. U5253 $c CU-SB
    (090-   -$a)   BRIEF-LISTED $c CU-SB
    (090-   -$a)   AP 1. V576 $c CU-SB
    (090-   -$a)   AP 8. V48 $c CU-SB
    (090-   -$a)   AP83.V62 $c CLU-URL
    (090-U 6-$a)   CHS          $b AP8,V48
    (090-U 6-$a)   CSdS         $b AP 8
    (090-U 6-$a)   CSjU         $b PER AP 8 V48
    (222-010-$a)   Vision $b (Montr_eal)
    (260-000-$a)   [Grand-Saconnex, Switzerland, $b SEPEC]
    (260-0  -$a)   Berkeley
    (260-0  -$a)   Sydney
    (260-0  -$a)   Mexico, D F
    (260-0  -$a)   Karachi
    (265-0  -$a)   c.p. 424, Station Youville, H2P 2V6
```

```
VISION
          REGISTER 37798701      OCLC     2242003          LCCN       75644692 .  ISSN     0382-0424.
    DAVIS           CU-A     (16-19)1967-70                  *** CSUC ***
    IRVINE          CU-I     #34-&IP2/1967-OCT 1973/,#43,      FULLERTON       CFlS     (16-19,1967-1970)-
                             (1974-1974),                      HAYWARD         CHS      16-19,1967-70
    LOS ANGELES     CLU-URL  Consult Lib                       SAN DIEGO-C     CSdS     (16-19,1967-1970)
    SANTA BARBARA   CU-SB     REFER TO CAMPUS                  SAN FRANCISCO-C CSFSt    17-,1968-
                    CU-SB    (1)1923                           SAN JOSE        CSjU     17-18,1968-1969,(19,1970)
                    CU-SB    (2?-)1963-                        SONOMA          CRpS     ROLL #0,41,1969,ON MICROFILM
                    CU-SB    (16-19)1967-70                                     CRpS     16-19,1968-1970

                                                                                  KWOC     fiche 0277
                                                                                           frame C 07
  Please see following page for analysis.                                                  page 074317
```

Example 33 - continued

The UCULS record illustrated in this example is an incorrect consolidation of six CONSER records and nine UC and CSUC machine-readable records representing the holdings of four UC and six CSUC libraries.

The OCLC numbers for the six CONSER records can be found on the first line of the Register record and in subfield c of the 035 field: 2242003, 2289295, 2274996, 2254336.

The local campus system identification numbers for UC and CSUC holdings libraries are found in subfield b of the 035 field:

S3260300:S3260500:S3260600:S3260200	UC Santa Barbara
A0040548	UC Los Angeles
I17258500	UC Irvine
D38298111	UC Davis
U6727900/6727900:U6728000/6728000	CSUC

Incorrect consolidation can be determined from the following data in the Register record: the six CONSER records because the CONSER data base seldom contains duplicate records unless one has been superseded, the existence of four 042 fields which indicates four authenticated CONSER records, and the existence of four different places of publication in the 222 (key title), 260 (imprint), and 265 (subscription address) fields.

Further sleuthing through the OCLC on-line file, local UC campuses' serials files on microfiche, and The California State University and Colleges Union List of Periodicals determined that this UCULS record is probably an incorrect consolidation of nine different serial titles with the short title VISION, published in Berkeley, Cleveland, Montreal, Regina, Mexico, Sydney, Bathhurst, Switzerland, and Karachi.

The cause of incorrect consolidation in this UCULS record can be traced to the attempt to consolidate records using only the short title from subfield a of the 245 field. In this case, the distinguishing place of publication was removed from some of the UC and CSUC entries during the translation process.

6.3.2 Analysis of problems with UCULS translation of main entry data.

In a number of cases, serials files submitted to ULAP did not conform to the LC MARC format. Special processing was needed to translate input files into the UCULS MARC-like format.

Some UC campus translation programs placed combined author and title data into a 244 field. An additional UCULS program at ULAP split the 244 field into MARC 110 and 245 fields for final conversion to UCULS format. The program to accomplish this split scanned the author/title data from back to front, stopping at the first occurrence of a period in the entry not including the period at the end of the field. All data up to that internal period were placed in the 245 field. The remaining data were placed in the 110 field. The program made an accurate split only when the author data preceded the title data, and the period appeared only between the two data elements to separate them. When title preceded author, or abbreviations with periods occurred in the data, or other data besides author and title were included in the main entry field, errors occurred.

Example 34 on the following page illustrates some of the errors that occurred.

Fortunately, it does not appear that these problems prevented matching entries from consolidating. The SKED key was extracted from the 1XX and 245 fields regardless of how the data were divided between the fields. Therefore, if the data were identical, the records would consolidate even if one campus entry had all the data in a 245 field, and another campus entry had the data split between a 110 and 245 field.

Example 34 - Problems with conversion of 244 field to MARC 110 and 245 fields

1. Corporate author follows title making an accurate split impossible.

Register fiche 0054
frame P 18
page 014579

11980605--(035-$a) UCULS NO.
Federal Probation. (United States. (110-6 -$a) Administrative Office of the United States Courts). (245-6 -$a)
(035- -$b) 12776108;

2. Data not applicable for a 110/245 split.

a. 29767805--(035-$a) UCULS NO.
Sloan Management Review. (110-1 -$a) Bound Vols in Main Lib. (245-1 -$a)
(035- -$b) 032065111;

Register fiche 0131
frame C 04
page 035144

b. 00226307--(035-$a) UCULS NO.
Access. (Washington D. (110-6 -$a) C.) (245-6 -$a)
(035- -$b) 10061750;

Register fiche 0001
frame J 17
page 000249

c. 11910102--(035-$a) UCULS NO.
Farmers Monthly Museum. (110-E -$a) Walpole,New Hampshire,1797-1810 (245-E -$a)
(035- -$b) J32767;

Register fiche 0054
frame O 14
page 014518

3. Unforeseen periods in the author/title data.

Register fiche 0010
frame L 05
page 002501

02001608--(035-$a) UCULS NO.
Andriot. Guide To U. S. (110-1 -$a) Government Serials and Periodicals. (245-1 -$a)
(035- -$b) 002001111;

CSUC files required special translation to UCULS format. The data in the machine-readable files were submitted to ULAP in a non-MARC format. Notes embedded in the main entry field were moved to appropriate MARC fields when they could be found and tagged by the software. In Example 35 below, the data in the 515 field of the UCULS Register record are in the main entry field of the original CSUC record which is reproduced from The California State University and Colleges Union List of Periodicals, 8th ed., 1977. Removing these data to the notes field, and placing the remaining main entry data in the 245 field allowed the CSUC record to consolidate with a UC Riverside record.

Example 35

CSUC record:

Dollar Magazine. A Monthly Gazette of Current Literature, Music and Art. V. 1-2; 1841-42. New York. Ceased Publication. [2114500]
RU 1-2, 1841-1842//, F Only
SU 1-2, 1841-1842//

Register record: Register fiche 0048 Frame H16 Page 012921

10649007--[035-$a] UCULS NO. [010-$a] LCCN: 04-21177
Dollar Magazine;a Monthly Gazette of Current Literature, Music and Art. [245-F
(035- -$b) NO3776000:u2114500/2114500:
(090-U G-$a) CFLS $b PERIODICAL Z/6951/A48/REEL 385
(090-U G-$a) CSJU $b MICF
(362-U B-$a) V. 1-2; 1841-42. NEW YORK
(515-U C-$a) CEASED PUBLICATION.
008 (0-5) ENTERED 770921

Problems sometimes occurred, however, in accurately splitting this embedded data. In Example 36, only a portion of the note information was removed, leaving volume number (V. 1) in the 245 field instead of placing it in the 500 field with the rest of the note. When this happened, the resulting SKED key could not match with SKED keys extracted from other records for the same serial title.

Example 36

CSUC record:

Dollar Magazine; a Literary, Political, Advertising, and Miscellaneous Newspaper. V. 1 [no.1-11); Jan.-[Dec.)] 1833. Philadelphia. [2114600]
RU 1, 1833, F Only
SU 1, 1833//

Register record: Register fiche 0048 Frame H16 Page 012921

10648909--[035-$a] UCULS NO. [010-$a] LCCN: 07-12657
Dollar Magazine; a Literary, Political, Advertising, and Miscellaneous Newspaper. V. 1
(035- -$b) U2114500/2114500:
(090-U G-$a) CFLS $b PERIODICAL Z/6951/A48/REEL 385
(090-U G-$a) CSJU $b MICF
(500-U B-$a) [NO.1-11); JAN.-[DEC.?]
008 (0-5) ENTERED 770921

6.4 Problems with the Register display.

The Register display should be reformatted to make it less difficult to read. There were also some minor problems with source codes in the display.

6.4.1 Error in the use of the CONSER source code "O".

The CONSER source code "O" was used in some UCULS records to identify a CSUC 245 field instead of the correct CSUC source code "U".

In the following example from the Register (Example 37), the 245 field tag is followed by the source code "O" incorrectly identifying CONSER as the source:

Example 37

Register fiche 0001 Frame E03 Page 000064

00064000--(035-$a) UCULS NO. (010-$a) LCCN: 62-29296
A.B.C. Shipping Guide. (245-0 -$a)
(035- -$z) u00011000/0011000:
(040-U $-$a) CSjU $b PER HE 548 A23
006 (0-5) ENTERED 770917

The 245 field tag should be followed by a "U" for CSUC:

A.B.C. Shipping Guide. [245-U -$a]

In the absence of an OCLC number, it can be assumed that the "O" source code is wrong. Also, the CONSER source code is generally followed by one or two indicator tags, e.g. [245-000].

6.4.2 Missing source code following 090 tag.

Sometimes the source code is not displayed following the 090 call number field tag. In Example 38 below, although the source code is missing following the second 090 field tag, the source can be determined from the NUC code displayed immediately after the local call number:

Example 38

```
                                Register 0001  Frame I17  Page 000248

    00225901--[035-$a] UCUL$ NO.
        Access; the Supplementary Index to Periodicals [245-A  -$a]
        [035-   -$b]   B1791590;
        [090-A  -$a]   AJ3,A18 $c CU-refe
        [090-   -$a]   A1 1, A32 $c CU-$B
        [.60-A  -$a]   Stockton, Gaylord Bros., Inc
        [260-B  -$a]   Syracuse
        [265-A  -$a]   Gaylord Bros., Inc $b 1738 E. Alpine Avenue $c Stockton, CA 95208
        008   (0-5) ENTERED    770917     (7-14) PUB DATES  1975-      (15-17) COUNTRY
```

The 090 tag should be followed by the source code for UC Santa Barbara:

[090-B -$a]

The list of NUC source codes is in Appendix A.

7.0 Case Study 3: Journal of experimental psychology - analysis of both KWOC entries and Register records.

This case study of the serial Journal of experimental psychology illustrates some of the types of problems that occurred during UCULS processing, and the impact of these problems on the merging and consolidating of UC, CSUC, and CONSER records into UCULS records. In addition, the case study demonstrates the value of the Register as a tool for analysis used in conjunction with the KWOC to define and explain these problems. While the bibliographic data in the Register records has considerable value in analyzing the unexpectedly complex problems, the end result of these problems was to make the Register unsatisfactory as a tool for cataloging or reference.

The Journal of experimental psychology was published from 1916 through 1974 as a single journal. In 1975, it split into four parts:

Journal of experimental psychology: general

Journal of experimental psychology: animal behavior processes

Journal of experimental psychology: human learning and memory

Journal of experimental psychology: human perception and performance

The part subtitled "general" continues the numbering of the original title. The original journal and its subsequent parts are in the holdings of most of the UC and CSUC libraries, as well as being in the CONSER data base.

The case study involves thirteen UCULS records which are presented on page 80 in the order in which they appear in the KWOC under the key word JOURNAL. (The page folds out for easy reference.) These records display a variety of problems which are described and explained in the following sections as outlined below:

7.1 Problems resulting in consolidation errors.

- 7.1.1 Variation in the content of UC and CSUC entries resulting in the non-consolidation of records (KWOC entries 1, 8, 9).
- 7.1.2 Error in translation of punctuation in CSUC entries resulting in the non-consolidation of records (KWOC entries 10 - 13).
- 7.1.3 Truncation of title in Davis entry resulting in the non-consolidation of records (KWOC entry 6).
- 7.1.4 Incomplete extraction of title in SKED key from CONSER entry resulting in the incorrect consolidation of records (KWOC entry 4).

7.2 Problems in display not affecting consolidation of records.

7.2.1 Truncation of title in CONSER entry in the Register record (KWOC entry 4).

7.2.2 Error in display of punctuation in CONSER entry (KWOC entry 4).

7.2.3 Truncation of ISSN in CSUC entries (KWOC entries 9 - 13).

7.1 Problems resulting in consolidation errors.

7.1.1 Variation in content of UC and CSUC entries resulting in non-consolidation of records (KWOC entries 1, 8, and 9).

KWOC entries:

1. JOURNAL of Experimental Psychology
REGISTER 17824304

BERKELEY	CU-EB/P	[10,1927]-
	CU-EB/P	8-103,1925-74//
DAVIS	CU-A	1-103,1916-74
IRVINE	CU-I	81-85/1926-1970/,888-103,(1971-

8. JOURNAL of Experimental Psychology. [microfilm]
REGISTER 17824903

LOS ANGELES	CLU-E/P	1,1960-

9. JOURNAL of Experimental Psychology. V. 1-103; Feb, 1916-1974
REGISTER 17825100 LCCN 17030350.

BAKERSFIELD	CBak	36-,1944-
CHICO	CChiS	1-100,1916-1974
DOMINGUEZ HILLS	CDHi	5,30-58,1948-59,59-97,1960-73,M

Entries 1, 8, and 9 are duplicate records for the original journal that ceased publication in 1974.

If the microform note in Entry 8, and the volume and date in Entry 9 were removed to an appropriate MARC field, the three entries should consolidate.

7.1.2 Error in translation of punctuation in CSUC entries resulting in non-consolidation of records (KWOC entries 10 - 13).

Entries 10 through 13 display a zero (0) in the place of a colon (:) between the title and the subtitle in both the KWOC and Register records. Using Entry 10 as an example, the CSUC record from The California State

University and Colleges Union List of Periodicals, 8th edition, 1977 is displayed below along with the KWOC and Register records.

CSUC record:

```
Journal of Experimental Psychology:
  Animal Behavior Processes.  Supersedes
in Part Journal of Experimental Psychology.
Issues for 1975 Called V. 104.    (DE76551)
CH   1-, 1975-
DH   1-, 1975-
FR   1-, 1975-
HU   1-, 1975-
HA   1-, 1975-
HB   1-, 1975-
HO   1-, 1975-
PO   1-, 1975-
SD   1-, 1975-
SF   1-, 1975
SL   V.1-, 1975-
SM   1-, 1975-
```

KWOC entry:

```
JOURNAL of Experimental Psychology0 Animal Behavior Processes
          REGISTER 17825205        LCCN          76643076.
    CHICO              CCh:S     1-,1975-
    DOMINGUEZ HILLS    CDhs      1-,1975-
    FRESNO             CFS       1-,1975-
    FULLERTON          CFlS      1-,1975-
```

Register record:

```
17825205--[035-Sa] UCULS NO.      [010-Sa] LCCN:    76-643076      [022-Sa] ISSN
    Journal of Experimental Psychology0 Animal Behavior Processes [245-0  -Sa]
    [035-   -Sb]   U3576550/3576550:
    [090-U G-Sa]   CHS          $b PER BF1.J613
    [090-U G-Sa]   CSluSP       $b PER QL750.J653
    [090-U G-Sa]   CChIS        $b PER/BF/1/J611
    [090-U G-Sa]   CArcHT       $b BF 1 J612
    [090-U G-Sa]   CDhs         $b QL 785 J6
    [090-U G-Sa]   CHoS         $b BF1.J6122
    [780-U C-Sa]   SUPERSEDES IN PART JOURNAL OF EXPERIMENTAL PSYCHOLOGY. ISSUES
    008   (0-5) ENTERED    770921
```

Since the colon exists in the CSUC record, it is probable that the error occurred during the UCULS translation process.

This problem of incorrect translation of punctuation prevented extraction of matching SKED keys from KWOC entries 10 and 2, 11 and 3, 12 and 5, 13 and 7.

7.1.3 Truncation of entry in Davis entry resulting in non-consolidation of records (KWOC entry 6).

Entry 6 displays a truncation of the title with the last letter dropped off the last word in both the KWOC entry and the Register record.

KWOC entry:

```
JOURNAL of Experimental Psychology: Human Perception and Performanc
            REGISTER 17824702
    DAVIS           CU-A     1,1975-
```

Register record:

```
17824702--[035-8a] UCULS NO.
    Journal of Experimental Psychology: Human Perception and Performanc [245-1  -8a]
    [035-   -8b]   D19909450;
    008   (0-5) ENTERED    770921
```

This truncation occurred frequently with Davis records and is not related to the length of the entry. Since the KWOC and Register were compiled from the UCULS Master File, errors occurring in both the KWOC and Register indicates that the error exists in the Master file.

There are two probable causes for this problem. First, the problem seems to be related to the removal of data from the Davis entry during the campus translation process. For example, the Davis record shown below indicates that the note "Continues in part Journal of experimental psychology" was removed during translation to UCULS format. Second, the letter could have been dropped during the conversion of the author/title 244 field to the MARC 110/245 fields.

Entry from the UC Davis serials list:

```
19909450   BF1 J715
           JOURNAL OF EXPERIMENTAL PSYCHOLOGY:
           HUMAN PERCEPTION AND PERFORMANCE.
           CONTINUES IN PART JOURNAL OF
           EXPERIMENTAL PSYCHOLOGY.
```

This problem contributed to the failure of Entries 6, 7, and 13 to consolidate.

7.1.4 Incomplete extraction of the title in the SKED key from the CONSER entry resulting in the incorrect consolidation of records (KWOC entry 4).

KWOC entry:

```
JOURNAL of experimental psychology:. general
          REGISTER 17824207          OCLC     2441503
    BERKELEY        CU-ED/P  For Issues Received,Consult
                             Library Listed
```

Register record:

```
17824207--[035-8a] UCULS NO.      [035-8c] OCLC NO: 2441503
    Journal of experimental psychology; 8a general [245-000-8a]
    [035-   -8b]   B1061620: 8c 2441503,2441504
    [040-0  -8d]   MSOP
    [042-0  -8a]   lc 8a nsdp
    [042-0  -8a]   lc 8a nsdp
    [042-0  -8a]   lc 8a nsdp
    [050-000-8a]   BF180 8b .J67
    [082-0  -8a]   150/.5
    [090-A  -8a]   BF1.J6 8c CU-ed-p
    [222-000-8a]   Journal of experimental psychology, General
    [260-001-8a]   [Washington] 8b American Psychological Association.
    [265-0  -8a]   1200 17th St. N.W., 20036
```

Entry 4 is the incorrect consolidation of three CONSER records (OCLC 2441503, 2441505, 2441504) and one UC Berkeley record (B1061620). The incorrect punctuation in the KWOC entry and the truncation of title in the Register record did not affect the consolidation and are explained in the next section.

The Register record shows that the title and subtitle in the CONSER entry are in separate subfields. The short title is in subfield a, while the subtitle is in subfield e. Although the subtitle is included in the display of the CONSER entry of both the KWOC and Register, it was not included in the SKED Key which extracts only subfield a of the main entry fields. Therefore, the following four records in Entry 4 consolidated on the short title, Journal of experimental psychology:

Berkeley - Journal of experimental psychology

CONSER - Journal of experimental psychology: general
Journal of experimental psychology: human perception and performance
Journal of experimental psychology: animal behavior processes

As a result, Entry 4 did not consolidate with Entries 3 and 10 which contain the SKED key Journal of experimental psychology: general.

However, at this stage of analysis it is not clear why the four records in Entry 4 consolidated on the short title Journal of experimental psychology, but did not match with Entry 1 below which is a correctly consolidated UCULS record containing records from all nine campuses for the original journal, Journal of experimental psychology.

KWOC entry:

```
JOURNAL of Experimental Psychology
                REGISTER 17824304
    BERKELEY            CU-EB/P   [10,1927)-                                    CU-I-M
                        CU-EB/P   8-103,1925-74//
    DAVIS               CU-A      1-103,1916-74
    IRVINE              CU-I      81-857(1926-1970/,888-103,(1971-
                                  1974),

                                                          LOS ANGELES           CLU-BIO
                                                                                CLU-E/P

    RIVERSIDE           CU-Riv    1-103,1916-74
    SAN DIEGO           CU-SCu    1-103(1916-74)
                        CU-SM     1-48:51-(52)-103(1916-74)
    SAN FRANCISCO       CU-M      55-103,1958-74
    SANTA BARBARA       CU-SB     24-103,1939-74;1-23,1916-38
    SANTA CRUZ          CU-SC     1,1916-
```

Register record:

```
17824304--(035-Sa) UCULS NO.
    Journal of Experimental Psychology [245-A  -Sa]
    [035-   -Sb]   B1150510:B1150500:S1687100:F3797-0000:A0021230:A0021231:J05973:J02430:
                   19900111:D19909111:
    [090-A  -Sa]   BF1.J6.Set2 Sc CU-ed-p
    [090-A  -Sa]   bf1,j6 Sc CU-ed-p
    [090-   -Sa]   BF 1. J63 Sc CU-SB
    [090-   -Sa]   W1,J0628 Sc CLU-BIO
    [090-   -Sa]   BF1.J622 Sc CLU-E/P
    [260-B  -Sa]   Washington, D C
    [260-A  -Sa]   American Psychological Association Sb 1200 17th Street, N. W.  Sc Wash
    [776-A  -Sb]   (AVAILABLE IN OTHER FORM) Journal of Experimental Psychology: Human Le
                   bf309.j669 Sh ed-p Sn 1150504
    [776-B  -Sa]   (AVAILABLE IN OTHER FORM) Journal of Experimental Psychology: General
    [785-C 2-St]   (SUPERSEDED BY) JOURNAL OF EXPERIMENTAL PSYCHOLOGY: HUMAN LEARNING AND
    [785-C 2-St]   (SUPERSEDED BY) JOURNAL OF EXPERIMENTAL PSYCHOLOGY: ANIMAL BEHAVIOR PR
    [785-C 2-St]   (SUPERSEDED BY) JOURNAL OF EXPERIMENTAL PSYCHOLOGY: GENERAL
    [785-C 2-St]   (SUPERSEDED BY) JOURNAL OF EXPERIMENTAL PSYCHOLOGY: HUMAN PERCEPTION A
    [785-F  -Sb]   JOURNAL OF EXPERIMENTAL PSYCHOLOGY:ANIMAL BEHAVIOR PROCESSES.
    [785-F  -Sb]   JOURNAL OF EXPERIMENTAL PSYCHOLOGY:GENERAL.
    [785-F  -Sb]   JOURNAL OF EXPERIMENTAL PSYCHOLOGY:HUMAN LEARNING AND MEMORY.
    [785-F  -Sb]   JOURNAL OF EXPERIMENTAL PSYCHOLOGY:HUMAN PERCEPTION AND PERFORMANCE.
    [786-B  -Sa]   Journal of Experimental Psychology: Human Learning and Memory; Journal
                   Perception and Performance; and Journal of Experimental Psychology: An
    008    (0-5) ENTERED    770921     (7-14) PUB DATES  1916-1974 (15-17) COUNTY      u
        (35-37) LANGUAGE    eng
```

7.2 Problems not affecting consolidation of records.

7.2.1 Truncation of title in CONSER entry in the Register record (KWOC entry 4).

Register record:

```
17824207--[035-$a] UCULS NO.      [035-$c] OCLC NO: 2441503
    Journal of experimental psychology; $e genera [245-000-$a]
    [035-   -$b]   01061620: $c 2441505,2441504
    [040-0  -$d]   NSDP
    [042-0  -$a]   lc $a nsdp
```

KWOC entry:

```
JOURNAL of experimental psychology:. general
                REGISTER 17824207      OCLC     2441503
    BERKELEY          CU-ED/P  For Issues Received,Consult
                               Library Listed
```

The Register record for Entry 4 shows the last letter of the last word of the title was dropped, i.e., "genera" instead of "general". This problem occurred frequently in Register records containing CONSER entries. The truncation does not appear in the KWOC entry. The problem is probably in the Register display program since the master file record from which the KWOC is compiled appears to be correct. In the UCULS processing, consolidation preceded display so this problem did not affect the consolidation of records.

7.2.2 Error in display of punctuation in CONSER entry (KWOC entry 4).

KWOC entry:

```
JOURNAL of experimental psychology:. general
                REGISTER 17824207      OCLC     2441503
    BERKELEY          CU-ED/P  For Issues Received,Consult
                               Library Listed
```

Register record:

```
17824207--[035-$a] UCULS NO.      [035-$c] OCLC NO: 2441503
    Journal of experimental psychology; $e genera [245-000-$a]
    [035-   -$b]   01061620: $c 2441505,2441504
    [040-0  -$d]   NSDP
    [042-0  -$a]   lc $a nsdp
```

Entry 4 displays what appears to be a colon and a period between the title and the subtitle in the KWOC entry, i.e. ":."

The Register record shows that the title is separated from the subtitle with a colon and a subfield code, i.e. ": $e" It would appear that the problem is in the KWOC display program which converted ": $e" into ":."

This display problem did not affect consolidation of records.

7.2.3 Truncation of the ISSN in CSUC record (KWOC entries 9 - 13).

Entries 9 through 13 which are all CSUC records show a truncation of the ISSN. The last two digits were dropped in the KWOC entries but are present in the Register records. Entry 10 is used for an example:

KWOC entry:

```
JOURNAL of Experimental Psychology0 Animal Behavior Processes
          REGISTER 17825205      LCCN          76643076.      ISSN              0097-74
    CHICO              CCHiS     1-,1975-                       SAN LUIS OBISPO  CSluSP
    DOMINGUEZ HILLS    CDHs      1-,1975-                       SONOMA           CRpS
    FRESNO             CFS       1-,1975-
    FULLERTON          CFlS      1-,1975-
```

Register record:

```
17825205--(035-$a) UCULS NO.      (010-$a) LCCN:    76-643076      (022-$a) ISSN:       0097-7403
    Journal of Experimental Psychology0 Animal Behavior Processes (245-0  -$a)
    (035-   -$b)   U3576550/3576550:
    (090-U 6-$a)   CHS          $b PER BF1.J613
    (090-U 6-$a)   CSluSP       $b PER QL750.J653
    (090-U 6-$a)   CCHiS        $b PER/BF/1/J611
    (090-U 6-$a)   CArcHT       $b BF 1 J612
    (090-U 6-$a)   CDHs         $b QL 785 J6
    (090-U 6-$a)   CHoS         $b BF1.J6122
    (780-U C-$a)   SUPERSEDES IN PART JOURNAL OF EXPERIMENTAL PSYCHOLOGY. ISSUES FOR 1975 CALLED V. 10
    008   (0-5) ENTERED    770921
```

This appears to be a KWOC display problem since the ISSN is displayed intact in the Register and therefore in the master file. The ISSN was not part of the consolidation algorithm for the UCULS-77. Thus this problem did not affect consolidation of records.

Case Study 3: Summary

This is clearly a "worst case" presentation. It points out the many problems with attempting to merge multi-institutional machine-readable files.

1. JOURNAL of Experimental Psychology
REGISTER 17824304
BERKELEY CU-ED/P (10,1927)-
CU-ED/P 8-103,1925-74//
DAVIS CU-A 1-103,1916-74

For complete holdings, see KWOC:
fiche 0137
frames 015, P15, B16
pages 36808 - 36810

2. JOURNAL of Experimental Psychology: Animal Behavior Processes
REGISTER 17824409
BERKELEY CU-ED/P For Issues Received,Consult

3. JOURNAL of Experimental Psychology: General
REGISTER 17824508
BERKELEY CU-ED/P 104,1975-
CU-ED/P For Issues Received

4. JOURNAL of experimental psychology:. general
REGISTER 17824207 OCLC 2461503
BERKELEY CU-ED/P For Issues Received,Consult
Library Listed

5. JOURNAL of Experimental Psychology: Human Learning and Memory
REGISTER 17824605
BERKELEY CU-ED/P For Issues Received,Consult
Library Listed

6. JOURNAL of Experimental Psychology: Human Perception and Performanc
REGISTER 17824702
DAVIS CU-A 1,1975-

7. JOURNAL of Experimental Psychology: Human Perception and Performance
REGISTER 17824800
BERKELEY Cu-ED/P For Issues Received,Consult

8. JOURNAL of Experimental Psychology. [microfile]
REGISTER 17824903
LOS ANGELES CLU-E/P 1,1960-

9. JOURNAL of Experimental Psychology. V. 1-103; Feb. 1916-1974
REGISTER 17825100 LCCN 17030350. ISSN 0022-10
BAKERSFIELD CBak 34-,1944- LOS ANGELES-C CLS
CHICO CChiS 1-100,1916-1974 NORTHRIDGE CNoS

10. JOURNAL of Experimental PsychologyO Animal Behavior Processes
REGISTER 17825205 LCCN 76643076. ISSN 0097-74
CHICO CChiS 1-,1975- SAN LUIS OBISPO CSluSP
DOMINGUEZ HILLS CDhs 1-,1975- SONOMA CRpS

11. JOURNAL of Experimental PsychologyO General
REGISTER 17825309 LCCN 76643075. ISSN 0096-34
CHICO CChiS 104-,1975- SAN LUIS OBISPO CSluSP
DOMINGUEZ HILLS CDhs 104-,1975- SONOMA CRpS

12. JOURNAL of Experimental PsychologyO Human Learning and Memory
REGISTER 17825406 LCCN 76643081. ISSN 0096-15
CHICO CChiS 1-,1975- SAN LUIS OBISPO CSluSP
DOMINGUEZ HILLS CDhs 1-,1975- SONOMA CRpS

13. JOURNAL of Experimental PsychologyO Human Perception and Performance
REGISTER 17825503 LCCN 76643082. ISSN 0096-15
CHICO CChiS 1-,1975- SAN LUIS OBISPO CSluSP
DOMINGUEZ HILLS CDhs 1-,1975- SONOMA CRpS

NUC Library Location Symbols

Excerpted from

UCULS'77 INTRODUCTION

SECTION 1

Library Location Symbols

University of California

Berkeley

NUC CODE	LOCATION
CU-ACQU	Acquisitions (Main Library)
CU-AGRI	Agriculture Library
CU-ANTH	Anthropology Library
CU-ASTR	Astronomy/Math/Stat Library
CU-BANC	Bancroft Library
CU-BIOC	Biochemistry Library
CU-BIOL	Biology Library
CU-CATA	Cataloging (Main Library)
CU-CCSL	Center for Chinese Studies Library
CU-CHEM	Chemistry Library
CU-CHIC	Chicano Studies Library
CU-DOCS	Documents Library (Main Library)
CU-DOCU	Documents Library (Main Library)
CU-EART	Earth Sciences Library
CU-EAST	East Asiatic Library
CU-ED/P	Education/Psychology Library
CU-EDUC	Education/Psychology Library
CU-ENGI	Engineering Library
CU-ENTO	Entomology Library
CU-ENVI	Environmental Design Library
CU-FORE	Forestry Library
CU-FPRO	Forest Products Library
CU-GTU	Graduate Theological Union
CU-HUMA	Humanities Graduate Service (Main Library)
CU-IGSL	Institute for Governmental Studies Library
CU-IISL	Institute of International Studies Library
CU-ILLO	Interlibrary Loan
CU-ITTE	Institute of Transportation and Traffic Engineering Library
CU-LAW	Boalt Hall Law Library
CU-LIBO	Librarian's Office (Main Office)
CU-LIBR	Library School Library
CU-LSL	Library School Library
CU-MAIN	Main Stacks and Periodicals (Main Library
CU-MAPS	Map Room (Main Library)
CU-MARK	Mark Twain Collection (Bancroft)
CU-MATH	Astronomy/Math/Stat Library
CU-MODE	Modern Authors Collection (Humanities Graduate Service) (Main Library)
CU-MORR	Morrison Room (Main Library)
CU-MUSI	Music Library
CU-NEAR	Near Eastern Studies Library
CU-NEWS	Newspaper Room (Main Library)
CU-OPTO	Optometry Library
CU-PHIL	Philosophy Library
CU-PHYS	Physics Library

SECTION 1

	NUC CODE	LOCATION
	CU-PUBL	Public Health Library
	CU-RARE	Rare Books Collection (Bancroft)
	CU-REFE	General Reference Service (Main Library)
	CU-SOCS	Social Science Library
	CU-SOCW	Social Welfare Library
	CU-UARC	University Archives (Bancroft)
	CU-UNDE	Moffitt Undergraduate Library
	CU-WRCA	Water Resources Center Archives
Davis	CU-A	Main Library
	CU-AL	Law Library
	CU-AM	Health Sciences Library
	CU-A-IG	Institute of Government Affairs
	CU-A-PKG	Packaging Library
	CU-A-TOX	Environmental Toxicology
Irvine	CU-I	Main Library
	CU-I-BS	Biological Science Library
	CU-I-CP	Center for Pathology
	CU-I-M	Medical Sciences Library
	CU-I-MB	Museum for Systematic Biology
	CU-I-PS	Physical Sciences Library
Los Angeles	CLU-ART	Art Library
	CLU-AUP	Architecture and Urban Planning Library
	CLU-C	William Andrews Clark Memorial Library
	CLU-CHM	Chemistry Library
	CLU-COL	College Library
	CLU-E/P	Education and Psychology Library
	CLU-EMS	Engineering and Mathematical Sciences Library
	CLU-G/G	Geology-Geophysics Library
	CLU-GRS	Graduate Reserve Library
	CLU-L	Law Library
	CLU-M	Biomedical Library
	CLU-MAP	Map Library
	CLU-MIC	URL-Microform Service
	CLU-MGT	Management Library
	CLU-MUS	Music Library
	CLU-O	URL-Oriental Library
	CLU-PAS	Public Affairs Service
	CLU-PHY	Physics Library
	CLU-REF	URL-Reference Department
	CLU-S/C	Department of Special Collections

SECTION 1

	NUC CODE	LOCATION
	CLU-T/A	URL-Theater Arts Reading Room
	CLU-UES	University Elementary School Library
	CLU-URL	University Research Library
Riverside	CU-Riv	General Library
	CU-RivA	BioAgriculture Library
	CU-RivP	Physical Sciences Library
San Diego	CU-SBM	Biomedical Library
	CU-SCl	Cluster Undergraduate Library
	CU-SCu	Central University Library
	CU-SSe	Science and Engineering Library
	CU-SSh	Society-University Hospital
	CU-SSi	Scripps Institution of Oceanography
San Francisco	CU-M	Library
Santa Barbara	CU-SB	Library
Santa Cruz	CMthL	Lick Observatory Library
	CU-SC	Library
California State Universities and Colleges	CArcHt	Humboldt State University
	CBaS	California State College, Bakersfield
	CChiS	California State College, Chico
	CDhS	California State College, Dominguez Hills
	CFlS	California State University, Fullerton
	CFS	California State University, Fresno
	CHS	California State University, Hayward
	CLobS	California State University, Long Beach
	CLobT	Chancellor's Office Library
	CLS	California State University, Los Angeles
	CMlM	Moss Landing Marine Laboratory
	CNoS	California State University, Northridge
	CPomCP	California State Polytechnic University, Pomona
	CRpS	California State College, Sonoma
	CSbC	California State College, San Bernardino
	CSdS	San Diego State University
	CSdS-Iv	Imperial Valley Campus of San Diego State University;Calexico
	CSfSt	San Francisco State University
	CSjU	San Jose State University
	CSluSP	California Polytechnic State University, San Luis Obispo
	CSS	California State University, Sacramento
	CTurS	California State College, Stanislaus
	CVM	California Maritime Academy

APPENDIX B

Key Words and Key Phrases Lists

Excerpted from

UCULS'77 INTRODUCTION

SECTION 3

Key Words Extracted Only When the First Word of an Entry

A number of key words are extracted only when they appear as the first word of the entry, whether the entry is an author/title entry or a title entry. The key word BULLETIN is an example of this case. The serial "Bulletin of the Atomic Scientist" will appear under the key word BULLETIN because it is the first word of the entry, but the serial "U.S. Dept. of Labor Bulletin" will not appear under the key word BULLETIN because the first word of the entry is "U.S." A complete list of these words follows:

AARBOK
AARSBOK
ABHANDLUNGEN
ACTA
ACTAS
ACTES
ACTS
ANGEWANDTE
ANNALEN
ANNALER
ANNALES
ANNALI
ANNALS
ANNEE
ANNUAIRE
ANNUAL
ANNUARIO
ANNUEL
ANNUELES
ANTI
ANUAL
ANUALES
ANUARIO
APRES
ARBOK
ARSBOK
ARTICLE
ARTICLES
AUPRES
BIENNIAL
BIULETIN
BIULETYN
BIULLETIN
BLAETTER
BLATTER
BOLETIM
BOLETIN
BOLLETTINO
BULETIN
BULETINUL
BULETNUL
BULLETIN
BULLETINS
BULLETTINO
CIRCULAR
DOKLADY
ETUDE
ETUDES
FINAL
FOLIA
HALBJAEHRLICHES
HALBJAHRES
HANDELSOCH
KUNGL
KUNGLICA
LEUR
LEURS
MAGAZINE
MINUTES
MISCELLANEOUS
MITTEILUNGEN
MONTHLY
NELLA
NELLE
NELLO
NEWS
NEWSLETTER
OCCASIONAL
OFFICIAL
PAMPHLET
PAMPHLETS
PAPERS
RAPPORT
RAPPORTS
RECOMMENDATION
REIHE
RELACIONE
RELAZIONI
REPORT
REPORTS
REVIEW
REVISTA
REVUE
RIVISTA
RUNDSCHAU
SERI
SERIA
SERIE
SERIES
SERIIA
SERIJA
SERYIA
SET
SEURA
SKRIFTER
SPECIAL
STUDI
STUDIA
STUDIES
TEIL
TRANSACTIONS
TRAVAUX
TRUDY
YEARBOOK
ZEITSCHRIFT
ZHURNAL

SECTION 4

Key Words Extracted Only When the First Word of Author or Any Word of Title

A number of key words are extracted only when they appear as the first word of the author or as any word in the title. The key word AUTHORITY is an example of these words: The serial "U.S. Office of Price Stabilization: Delegation of Authority" will appear under the key word AUTHORITY because it appears in the title, but the serial "Tennessee Valley Authority: Report" will not appear under the key word AUTHORITY because it appears as the last word of the author and does not appear in the title. A complete list of these words is as follows:

ADMINISTERED
ADMINISTRACAO
ADMINISTRACION
ADMINISTRATIF
ADMINISTRATIFS
ADMINISTRATION
ADMINISTRATIVE
ADMINISTRATIVO
ADVISORY
ALABAMA
ALASKA
ALL
ARIZONA
ARKANSAS
ASSOCIATES
ASSOCIATION
ASSOCIATIONS
AUSTRALIA
AUSTRIA
AUTHORITY
BELGIUM
BOARD
BOARDS
BOLIVIA
BRANCH
BRAZIL
CANADA
CANADIAN
CHILE
CHINA
CITY
COLOMBIA
COLORADO
COMMAND
COMMUNITIES
COMPANY
CONNECTICUT
CONSEIL
CONSEJO
CONSELHO
CONSIGLIO
CONTROLLER
CORPORACION
CORPORATION
CORPS
COUNCILS
COUNTIES
DELAWARE
DELEGATION
DENMARK
DIVISIONS
ECUADOR
EGYPT
ENG
EXECUTIVE
FEDERAL
FEDERATION
FINLAND
FLORIDA
FRANCE
GEORGIA
GERMANY
GROUP
HAWAII
IDAHO
INDIANA
INDONESIA
INSTITUTION
IOWA
ISRAEL
ILLINOIS
ITALY
JAPAN
JOINT
JUNTA
KANSAS
KENTUCKY
LOUISIANA
MAINE
MARYLAND
MASSACHUSETTS
MEXICO
MICHIGAN
MINISTERE
MINISTERIO
MINISTERO
MINISTERESTWO
MINISTRY
MINNESOTA
MISSISSIPPI
MISSOURI
MONTANA
NEBRASKA
NETHERLANDS
NEVADA
NORWAY
OHIO
OKLAHOMA
ONTARIO
OREGON
PAKISTAN
PENNSYLVANIA
PERU
POLAND
PORTUGAL
PROVINCIAL
REPUBLIC
SCHOOL
SCHOOLS
SOCIETY
SPAIN
STATE
STATNI
SUPERINTENDENC
SUPERINTENDENT
SUPERIOR
SWEDEN
TENNESSEE
TEXAS
UGANADA
UNIT
URUGUAY
UTAH
VENEZUELA
VERMONT
VIRGINIA
WASHINGTON
WILLIAM
WISCONSIN
WYOMING

SECTION 5

Key Words Extracted Only When the First Word of Author or Title

A number of key words are extracted only when they appear as the first word of the author or title. The key word AFFAIRS is an example of one of these words: The serial "Affairs of State" will appear under the key word AFFAIRS because it is the first word of the title, but the serial "Journal of Foreign Affairs" will not appear under the key word AFFAIRS because it is not the first word of the title. Another example is the key word COUNCIL. The serial "American Medical Association. Council on Drugs: New Drugs" will not appear under the key word COUNCIL because it is not the first word of the author (American Medical Association. Council on Drugs) or the title (New Drugs), but the serial "Council of the European Communities: Review of the Council's Work" will appear under the key word COUNCIL because it is the first word of the author. A complete list of these words is as follows:

ABOUT
ABT
ABTEILUNG
ACADEMIA
ACADEMIE
ACADEMY
ACCOMPANYING
ACCORDING
ACCOUNTS
ACT
ACTION
ACTIVIDADES
ACTIVITE
ACTIVITIES
ACTIVITIES
ACTIVITY
ACTUAL
ACTUALE
ACTUALIDAD
ACTUALIDADES
ACTUALITE
ACTUALITIES
ADDITIONAL
ADDRESS
ADDRESSED
ADDRESSES
ADOPTED
AFFAIRS
AGAINST
AGENCIA
AGENCY
AGENDA
AGREEMENT
AGREEMENTS
AIDED
AKADEEMIA
AKADEMI
AKADEMIA
AKADEMIE
AKADEMIEN
AKADEMIJA
AKADEMISCHE
AKTUELE
ALSO
AMENDED
AMT
AMTES
AMTLICHE
AMTLICHER
AMTLICHES
AMTSBLATT
AMTSVORMUND
AMTSVORMUNDSCHAT
ANNOTATED
ANNOUNCEMENT
ANNOUNCEMENTS
ANZEIGER
APPLICATION
APPLICATIONS
APPLIED
APPLY
APLYING
APPOINTED
APPROVED
APRIL
APRILE
AREA
AREAS
ARRANGED
ASOCIACION
ASOCIACIONES
ASSESSING
ASSN
ASSOCIACAO
ATIVIDADES
ATTI
AUGUST
AUSGABE
AUSGABEN
AUSGEWAHLTE
AUSGEWAHLTEN
AUSGEWAHLTER
AVAILABLE
AVHANDLINGAR
AVHANDLINGER
AZERBAIDZHANKS
BACKGROUND
BASIC
BEFORE
BEGEGNUNG
BEHIND
BEIHEFT
BEIHEFTE
BEILAGE
BEING
BEITRAGE
BERICHT
BERICHTE
BERICHTEN
BETTER
BETWEEN
BIG
BOOKLET
BOUND
BOUNDARY
BRIEF
BRIEFE
BROCHURE
BUNDES
BUNDESAMT
BUNDESMINISTERE
BUREAU
CAHIERS
CALENDAR
CALL
CARTA
CARTAS
CARTE
CARTES
CENTER
CENTRAAL
CENTRAL
CENTRE
CENTRO
CERTAIN
CHANGING
CHAPTER
CHART
CHOICE
CIA
CIE
CIUDAD
CIUDADES
CLASS
CLASSE
CLASSES
CLASSIFIED
CLUB

SECTION 5

COLECAO
COLECCAO
COLECCION
COLECCIONES
COLEGIO
COLLECTED
COLLECTION
COLLECTIONS
COLLEGE
COLLOQUE
COLLOQUES
COLLOQUIM
COMBINED
COMISION
COMITATO
COMITE
COMMENTARY
COMMISSION
COMMISSIONE
COMMISSIONER
COMMISSIONERS
COMMITTEE
COMMITTEES
COMMUNICATION
COMMUNICATIONS
COMPILATION
COMPILED
CONCERNING
CONFERENCE
CONFERENCES
CONSOLIDATED
CONTAINING
CONTINUING
CONTRIBUTIONS
COORDINATING
CORP
COUNCIL
COUNTY
COVERED
COVERING
CUADERNO
CUADERNOS
CUMULATION
CUMULATIVE
CURRENT
DAILY
DAY
DECEMBER
DECEMBRE
DELGI
DEPARTAMENTE
DEPARTAMENTES
DEPARTMENTO
DEPARTMENT
DEPARTMENTS
DEPT
DETAILED
DETERMINED
DETERMINING
DICEMBRE
DIGEST
DIRECCAO
DIRECCION
DIRECTION
DIRECTORATE
DIREKTORAT
DIRETIE
DIREZIONE
DISSERTATION
DISTRICTS
DIV
DIVISAO
DIVISION
EACH
ECOLE
EDICION
EDITED
EDITION
ENACTED
ENSTITUSU
ERGANZUNGSBAND
ESCOLA
ESCUELA
ESPECIAL
ESPECIALES
ESPECIALIDAD
ESPECIALIDADES
ESPECIALIZADAS
ESPECIALLY
ESTABLISHMENT
ESTACION
ESTIMATING
ESTUDIO
ESTUDIOS
ESTUDOS
ETC
EXAMINING
EXCEPT
EXPANDED
EXTENSION
FACILITIES
FACOLTA
FACULDADE
FACULTAD
FACULTE
FACULTY
FAKULTA
FAKULTESI
FAKULTET
FEBRERO
FEBRUARIE
FEBRUARY
FIRM
FOLGE
FOLLOW
FOR
FORM
FORMS
FULL
GAZETTE
GENERAL
GENERALE
GERAL
GESELLSCHAFT
GOING
GOSUDARSTVENNY
GOVERNMENT
GOVERNOR
GRADUATE
HANDBOCKER
HANDBOOKS
HANDBUCH
HANDBUCHER
HANDLING
HARD
HAVE
HAVING
HEARINGS
HEFTE
HEINRICH
HELP
HER
HERALD
HERAUSGEGEBEN
HEUTE
HIGHLIGHTS
HIS
HORS
HOW
IBN
IF
II
III
ILLUSTRATED
ILLUSTRE
ILLUSTREE
ILLUSTRIERTE
ILLUSTRIERTES
IMPERIAL
IMPORTANT
IMPROVING
INAUGURAL
INC
INCLUDING
INCORPORATED
INCORPORATING
INCORPORATION
INCORPORATIONS
INDIRECTLY
INDIVIDUAL
INFORMACION
INFORMACIONES
INFORMATIVA
INFORMATIVE
INFORMATIVNI
INFORMATSII
INFORMATSIIA
INFORME
INHALTSVERZEICHNIS
INSBESONDERE
INST
INSTITOUTON
INSTITUT

SECTION 5

INSTITUTE
INSTITUTET
INSTITUTIONS
INSTITUTO
INSTITUTS
INSTITUTT
INSTITUTUL
INSTITUUT
INSTYTUT
INTEZAT
INTRODUCED
INTRODUCTION
INVENTAIRE
INVENTARIA
INVENTARIO
INVENTARIOS
INVENTORY
NVESTIGACION
INVESTIGACIONES
INVESTIGACOES
INVESTIGATE
INVESTIGATING
INVOLVING
ISSLEDOVANIE
ISSLEDOVANIIA
ISSLEDOVANIL
ISSUE
ISSUED
ISTITUTO
IT
ITEMS
ITS
IV
IZDANIE
IZDANII
IZDANIIA
IZDANIIU
IZDANIJA
IZVESTIIA
JAHRBUCH
JAHRESBERICHT
JAHRESBERICHTE
JAHRESBERICKT
JOB
JOURNAL
JULKAISU
JULKAISUJA
JULY
JUNE
JUNI
JUSQUA
JUSQUAU
KAI
KAISERLICH
KAISERLICHE
KAISERLICHEN
KAISERLICHES
KATALOG
KLASSE
KOMISJA
KOMISJI
KOMITET
KOMMISSION
KOMMISSIONEN
KONGLICH
KONGLICHE
KONGLICHEN
KONGLICHES
LARGE
LEAFLET
LEAFLETS
LEAGUE
LECTURE
LECTURES
LEGISLATURE
LESS
LETOPIS
LETRAS
LETTER
LETTERE
LETTEREN
LETTERS
LIMITED
LINE
LIST
LISTING
LISTS
LITOPYS
LITTLE
LTD
MA
MADE
MAGAZINES
MAGISTRATO
MAKING
MANUALS
MATERIALY
MED
MEDDELANDE
MEDDELANDEN
MEDDELELSE
MEDDELELSER
MEDEDEELING
MEDEDEELINGEN
MEDEDELING
MEDEDELINGEN
MEETING
MEETINGS
MEMBERS
MEMBRES
MEMO
MEMORANDUM
MENSUAL
MENSUEL
MET
METHODS
MISC
MONATSBERICHTE
MONATSCHEFTE
MONATTSSCHRIFT
MONOGRAPH
MONOGRAPHIEN
MONOGRAPHS
MONTEVIDEO
NACIONAL
NATIONAL
NATIONALE
NAUK
NAZIONALE
NEBST
NEUE
NO
NOTE
NOTES
NOTICE
NOUA
NOUVELLE
NOVAIA
NOVEMBER
NOVEMBRE
NOVEMBRO
NOVIEMBRE
NUEVA
NUMBER
NUMERO
OCTOBER
OCTOBRE
OCTUBRE
OEUVRES
OFFICE
OFFICIEL
OFICIAL
OFICINA
ONLY
OPERE
ORDER
ORDERS
ORGANISATION
ORGANIZATION
OTHER
OVER
PART
PER
PLANNING
PLUS
POCKET
POLICY
PRACE
PRACTICE
PRO
PROCEEDINGS
PROGRAM
PROJECT
PT
PUBLICATION
PUBLICATIONS
QUARTERLY
QUARTO
RADA
RAEKKE
RATES
RECEIVED
RESEARCHES

SECTION 5

RECOMMENDED
RECORD
RECORDS
RECUEIL
REEKS
REGARDING
REGION
REGISTER
REGISTRO
REGULATION
REGULATIONS
RELATED
RELATING
RELEASE
REP
REPARTICAO
REQUIRED
REQUIREMENTS
RESEARCH
RESULTS
REVISION
ROSTER
ROYAL
ROYALE
RULES
SAMMLUNG
SAVE
SBORNIK
SCHEDULE
SCHEDULES
SCHEDULED
SCHRIFTEN
SCHRIFTENREIHE
SCOTLAND
SECCION
SECRETARIA
SECRETARY
SECTIO
SECTION
SECTIUNEA
SELECT
SELECTED
SENTRALBYRA
SEPTEMBER
SER
SERVICE
SERVICES
SERVICIO
SERVICO
SERVICOS
SESIONES
SESSION
SESSIONS
SEVERAL
SEZIONE
SHE
SHEET
SHEETS
SHOWING
SITUATION
SKOLA
SKRIFTSERIE
SO
SOC
SOCIEDAD
SOCIETA
SOCIETE
SOME
SOMMAIRE
SONDERBAND
SONDERHEFT
SOUS
SPONSORED
STAFF
STATEMENT
STATEMENTS
STATION
STATIONS
STUDIE
STUDIEN
STUDIER
STUDY
SUBCOMMITTEE
SUBMITTED
SUMMARY
SUPPLEMENT
SUPPLEMENTARY
SUPPLEMENTBAND
SUPPLEMENTHEFT
SUPPLEMENTS
SUPPLEMENTUM
SUPPORTING
SURVEY
SZKOLA
TABLES
TAKEN
THEY
TERZA
THEIR
THIS
THROUGH
TIDSKRIFT
TIDSSKRIFT
TIJDSCHRIFT
TO
TOM
TOWARD
TRIENNIAL
TRIMESTRAL
TRIMESTRIEL
TSENTR
TWICE
UFFICIO
UNDER
UNIVERSIDAD
UNIVERSIDADE
UNIVERSIDADES
UNIVERSITA
UNIVERSITAIRE
UNIVERSITAIRES
UNIVERSITARIA
UNIVERSITARIES
UNIVERSITARIO
UNIVERSITAS
UNIVERSITAT
UNIVERSITATEA
UNIVERSITATIS
UNVIERSITE
UNIVERSITEIT
UNIVERSITESI
UNIVERSITET
UIVERSITETET
UNIVERSITY
UNIVERSYTET
UNIVERZITA
UNIVERSZITET
UNIWERSYTET
UNIWERSYTETU
UPON
USE
USED
VARIOUS
VED
VEREIN
VEROFFENTLICHU
VERZEICHNES
VERZEICHNISSE
VOL
VOLUME
VOLUMES
VOR
WEEKLY
WERKE
WERKEN
WHAT
WHEN
WHERE
WHICH
WHILE
XI
XII
XIII
XIV
XIVE
XIX
XIXE
XV
XVI
XVIE
XVII
XVIIE
XVIII
XVIIIE
XVTH
XX
XXE
YEAR
YOU
YOUR
ZAPISKI
ZBORNIK
ZWISCHEN

SECTION 6

Key Phrases

Searching under a phrase (i.e. two or more adjacent words) will also assist the user in finding a serial more readily. Phrases are both subject and geographic in nature. If two or more words are used to form a key phrase the individual words of that phrase are not listed. For example, entries under the key phrase INTERNATIONAL CONGRESS will not be found under the key word INTERNATIONAL or CONGRESS. Some examples of key phrases are: ATOMIC ENERGY, COMMON MARKET, FINANCIAL AID, LA JOLLA, SAN FRANCISCO.

"United" is used both as a key word and a key phrase under special conditions. "United" appears as a key word only when not followed by states, nations or kingdom. When these words follow the key phrases, UNITED STATES, UNITED NATIONS or UNITED KINGDOM are formed. These phrases appear as key phrases only when they are the last words of the author or title or are the only words of the author or title. In all other cases they appear with the next word to form a key phrase such as UNITED STATES AIR, UNITED NATIONS RELIEF and UNITED KINGDOM ATOMIC.

A list of the more common key phrases is as follows. A complete list will be provided upon request.

ACADEMIC SENATE
ADALBERT STIFTER
ADJUTANT GENERAL
AFL CIO
AFRIQUE CENTRALE
AFRIQUE FRANCAISE
AFRIQUE NOIRE
AFRIQUE NORD
AFRIQUE QUEST
AFRIQUE SUD
AFRO AMERICAN
AGRA OUDH
AGRICULTURAL ECONOMICS
AGRICULTURAL EXPERIMENT
AGRICULTURAL EXTENSION
AGRICULTURAL STATISTICS
AIR CONDITIONING
AIR CORPS
AIR FORCE
AIR POLLUTION
AIR RESOURCES
AIX MARSEILLE
AKADEMIIA NAUK
ALLIED POWERS
ALSACE LORRAINE
ANDHRA PRADESH
ANDRES BARBERO
ANDRES BELLO
ANIMAL HUSBANDRY
ANN ARBOR
ARCHAEOLOGICAL SOCIETY
ARCHAEOLOGICAL SURVEY
ARCHEOLOGICAL SOCIETY
ARCHEOLOGICAL SURVEY
ARGENTINE REPUBLIC
ARMED FORCES
ARMED SERVICES
ARMS CONTROL
ART GALLERY
ART MUSEUM
ASIAN STUDIES
ASIATIC SOCIETY
ASTRONOMICAL OBSERVATORY
ASTRONOMICAL SOCIETY
ASTRONOMICAL UNION
ATOMIC BOMB
ATOMIC ENERGY
ATOMIC SCIENTISTS
ATOMIC WEAPON
ATTORNEY GENERAL
AUCKLAND INSTITUTE
AUCKLAND UNIVERSITY
AUTOMATIC CONTROL
BADEN WURTTEMBERG
BANCO CENTRAL
BANQUE CENTRALE
BANQUE NATIONALE
BAY AREA
BEAUX ARTS
BEHAVIORAL SCIENCE
BEHAVIORAL SCIENCES
BELGRAD INSTITUTE
BELGRAD UNIVERZITET
BELLES LETTRES
BERLIN FREIE
BERLIN STAATLICHE
BERLIN UNIVERSITAT
BERMUDA ISLANDS
BERNICE PAUAHI
BEVERLY HILLS
BIBLIOTECA NACIONAL
BIBLIOTHEQUE NATIONALE
BIBLIOTHEQUE ROYALE
BIHAR ORISSA
BIOLOGICAL ABSTRACTS
BIOLOGICAL SCIENCE
BIOLOGICAL SCIENCES
BIOLOGICAL SURVEY
BOSTON MUSEUM
BOSTON UNIVERSITY
BOTANIC GARDEN
BOTANICAL SOCIETY
BOTANICHESKII INSTITUT
BOTANICHESKII SAD
BRIGHAM YOUNG
BRITISH COLUMBIA
BRITISH GUIANA
BRITISH INSTITUTE
BRITISH INSTRUMENTS
BRITISH JOURNAL
BRITISH MUSEUM
BRUSSELS BIBLIOTHEQUE
BRUSSELS INSTITUT
BRUSSELS MUSEES
BRUSSELS OBSERVATOIRE
BUCHAREST BIBLIOTECA
BUCHAREST INSTITUTUL
BUCHAREST UNIVERSITATEA
BUENOS AIRES
BUSINESS ADMINISTRATION

SECTION 6

BYTOM MUZEUM
CAIRO INSTITUT
CAIRO UNIVERSITE
CAIRO UNIVERSITY
CALIFORNIA BUREAU
CALIFORNIA COMMISSION
CALIFORNIA DEPT.
CALIFORNIA DIVISION
CALIFORNIA STATE
CALIFORNIA UNIVERSITY
CAPE BRETON
CAPE COD
CAPE TOWN
CAPE VERDE
CASE STUDIES
CASE STUDY
CASE WESTERN
CASTEL GANDOLFO
CHAPEL HILL
CHEMICAL ABSTRACTS
CHEMICAL SCIENCES
CHEMICAL SOCIETY
CHRISTIAN SCIENCE
CIENCIAS EXACTAS
CIENCIAS LETRAS
CIENCIAS NATURAIS
CIVIL AERONAUTICS
CIVIL DEFENSE
CIVILIAN DEFENSE
CLASSICAL ASSOCIATION
CLASSICAL REVIEW
CLASSICAL STUDIES
CLEARING HOUSE
CLERMONT FERRAND
COAST GUARD
COLD SPRING
COLOMBO PLAN
COMMON MARKET
COMMONWEALTH BUREAU
COMMUNITY DEVELOPMENT
COMMUNITY PLAN
COMMUNITY PLANS
COMMUNITY PLANNING
COMMUNITY PROJECTS
COMMUNITY SERVICE
COMMUNITY SERVICES
COMMUNITY STUDIES
COMPARATIVE LITERATURE
COMPARATIVE STUDIES
COMPTE RENDU
COMPTES RENDUS
COMPUTER SCIENCE
COMPUTER SCIENCES
COMPUTING MACHINERY
CONGO BELGIAN
CONGRESS HOUSE
CONGRESS HOUSING
CONGRESS SENATE
CONSTITUENT ASSEMBLY
CONTRA COSTA
CONTROL ADMINISTRATION
CONTROL DISTRICT
CORAL GABLES
CORAL REEFS
COSTA FRANCISCO
COSTA MESA
COSTA NOROESTE
COSTA OCCIDENTAL
COSTA RICA
COTE IVOIRE
COVENT GARDEN
CREDIT UNION
CREDIT UNIONIST
CREDIT UNIONS
CROP REPORT
CULTURAL AFFAIRS
CULTURAL CHANGE
CULTURAL ORGANIZATION
CULTURAL STUDIES
CURIE SKLODOWSKIEJ
CURITIBA MUSEU
CURITIBA UNIVERSIDADE
CZECHOSLOVAK REPUBLIC
DAG HAMMARSKJOLD
DAR SALAAM
DATA BOOK
DATA PROCEEDINGS
DATA PROCESSING
DEATH VALLEY
DECCAN COLLEGE
DEFENSE ANALYSES
DEFENSE SERVICES
DEFENSE STUDENT
DEL MONTE
DEL NORTE
DEMOCRATIC REPUBLIC
DES MOINES
DEUTSCHE AKADEMIE
DEUTSCHE BIBLIOGRAPHIE
DEUTSCHE BIBLIOTHEK
DEUTSCHE BUNDESBANK
DEUTSCHE FORSTLICHE
DEUTSCHE GESELLSCHAFT
DEUTSCHE GESETZE
DEVELOPMENT CENTER
DEVELOPMENT CENTRE
DEVELOPMENT PLANNING
DIARIO OFICIAL
DICTIONARY CATALOG
DISCUSSION PAPER
DISEASE CONTROL
DOMESTIC COMMERCE
DOMESTIC COMMUNICATIONS
DOMINICAN REPUBLIC
DRUG ABUSE
DRUSTVENIH NAUKA
DUMBARTON OAKS
EARTH SCIENCE
EAST AFRICA
EAST AFRICAN
EAST ASIA
EAST ASIAN
EAST ASIATIC
EAST BAY
EAST EUROPE
EAST EUROPEAN
EAST GERMAN
EAST GERMANY
EAST HAMPTON
EAST INDIA
EAST PAKISTAN
EAST WEST
ECONOMIC COMMISSION
ECONOMIC OPPORTUNITIES
ECONOMIC OPPORTUNITY
ECONOMIC PLAN
ECONOMIC PLANNING
ECONOMIC REVIEW
EDUCATION ASSOCIATION
EDUCATION STUDY
EDUCATIONAL DEVELOPMENT
EDUCATIONAL LABORATORIES
EDUCATIONAL LABORATORIES
EDUCATIONAL RESEARCH
EDUCATIONAL SCIENCES
EESTI NSV
EL CAJON
EL CENTRO
EL CERRITO
EL DORADO
EL MONTE
EL PASO
EMERGENCY PLAN
EMERGENCY PLANNING
EMERGENCY RELIEF
EMILIO GEOLD!
EMPIRE STATE
EMPLOYMENT SECURITY
EMPLOYMENT SERVICE
EMPLOYMENT SERVICES
ENGLISH ASSOCIATION
ENGLISH STUDIES
ENOCH PRATT
ENTOMOLOGICAL INSTITUTE
ENTOMOLOGICAL SOCIETY

SECTION 6

ENVIRONMENTAL HEALTH
ENVIRONMENTAL SCIENCE
ENVIRONMENTAL STUDIES
EUROPEAN COMMAND
EUROPEAN COMMISSION
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EUROPEAN COMMON
EUROPEAN COMMUNITIES
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FACT BOOK
FAMILY PLANNING
FAMILY SERVICE
FAR EAST
FAR EASTERN
FARM CREDIT
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FEDERACION NACIONAL
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FINANCIAL RESEARCH
FINE ARTS
FIRE MARSHAL
FISH GAME
FISH WILDLIFE
FISHERMANS BEND
FLUID MECHANICS
FOOD RESEARCH
FOOD SCIENCE
FOOD TECHNOLOGY
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FOREIGN RELATIONS
FOREST INDUSTRIES
FOREST PRODUCTS
FOREST RESEARCH
FOREST SCIENCE
FOREST SERVICE
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FORESTRY BUREAU
FORESTRY DEVELOPMENT
FORESTRY DIVISION
FORESTRY INSTITUTE
FORESTRY SOCIETY
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GEODETIC SURVEY
GEOLOGICAL ASSOCIATION
GEOLOGICAL SCIENCES
GEOLOGICAL SOCIETY
GEOLOGICAL SURVEY
GEORGI DIMITROV
GHENT RIJKSUNIVERSITEIT
GILBERT ELLICE
GOLD COAST
GOLDEN GATE
GOVERNMENTAL AFFAIRS
GOVERNMENTAL PROBLEMS
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GOVERNMENTAL STUDIES
GRAND CANYON
GRAND DUCAL
GRAND NATIONAL
GRAND RAPIDS
GREAT BASIN
GREAT BRITAIN
GREAT FALLS
GREAT LAKES
GREAT PLAINS
GROSSE DUDEN
GROSSE POINT
GRUZINSKOI SSR
GULF COAST
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HAYKAKAN SSH
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HEALTH EDUCATIONAL
HEALTH EDUCATORS
HEALTH WELFARE
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HIMACHAL PRADESH
HISTORICAL ASSOCIATION
HISTORICAL RESEARCH
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HISTORICAL STUDIES
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HISTORISCHE STUDIEN
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INDUSTRIAL COMMISSION
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INDUSTRIAL RELATIONS
INDUSTRIAL REPORT
INDUSTRIAL RESEARCH
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INFORMATION CENTERS
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INTER AMERICAN
INTER AMERICANA
INTER GOVERNMENTAL
INTERIM COMMISSION
INTERIM COMMITTEE
INTERNAL REVENUE
INTERNATIONAL BANK
INTERNATIONAL CONGRESS
INTERNATIONAL CONGRESSES
INTERNATIONAL FEDERATION
INTERNATIONAL RELATIONS
INTERNATIONAL REVIEW
INTERNATIONAL SETTLEMENT
INTERNATIONAL STUDENT
INTERNATION STUDIES
INTERSTATE COMMERCE
INTERSTATE COMMITTEE
ITOGI NAUKI
IVORY COAST
JAVIER PRADO
JOHNS HOPKINS
JUNIOR COLLEGE
KAZAKHSKOI SSR
KIRGIZSKOI SSR
LA CROSSEE
LA JOLLA
LA MESA
LA MIRADA
LA PAZ
LA PLATA
LA PUENTE
LA SALLE
LABOR FORCE
LABOR MARKET
LABOR OFFICE
LABOR OFFICIALS
LABOR RELATIONS
LABOR STANDARDS
LAND MANAGEMENT
LAS CRUCES
LAS PALMAS
LAS VEGAS
LATIN AMERICA
LATIN AMERICAN
LAW ENFORCEMENT
LAWS STATE

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LEGISLATIVE COUNCIL
LEGISLATIVE COUNSEL
LEGISLATIVE COUNTY
LEGISLATIVE REFERENCE
LEO BAECK
LIETUVOS TSR
LOCAL GOVERNMENT
LOGISTICS SERVICES
LONG BEACH
LONG ISLAND
LOS ALTOS
LOS ANGELES
LOS BANOS
LOS GATOS
MADHYA PRADESH
MALAGASY REPUBLIC
MALAWI DEPT.
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MATHEMATICAL SOCIETY
MCGRAW HILL
MECHANICAL ENGINEER
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MENTAL HEALTH
MENTAL HYGIENE
MENTAL RETARDATION
METROPOLITAN AREA
METROPOLITAN PLAN
METROPOLITAN PLANNING
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MILITARY TRIBUNAL
MINAS GERAIS
MINERAL INDUSTRY
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MONETARY FUND
MOSCOW GOSUDARSTVENNAIA
MOSCOW GOSUDARSTVENNYI
MOSCOW TSENTRAL
MOSCOW UNIVERSITET
MOSCOW VSESOIUZNAIA
MOSCOW VSESOIUZNYI
MOTOR VEHICLE
MOYEN AGE
MUSEE NATIONAL
MUSEE ROYAL
MUSEO NACIONAL
MUSEU NACIONAL
MUSEUM NATIONAL
NARODNI MUSEUM
NATURAL HISTORY
NATURAL RESOURCES
NATURAL SCIENCES
NAUCHNO ISSLEDOVATEL
NAUCHNO ISSLEDOVATELSKII
NAUCHNO TEKHNICHESKAIA
NAUCHNO TEKHNICHESKIE
NAUCHNO TEKHNICHESKII
NAUCHNO TEKHNICHESKOI
NAUCHNOI LITERATURY
NAUCHNOI TEKHNISHESKOI
NAUCHNYE DOKLADY
NAUCHNYE TRUDY
NAUKA UMETNOSTI
NAUKA UMJETNOSTI
NAUKE TEKHNIKE
NAUKI TEKHNIKE
NAUKITE INSTITUT
NAVAL RESEARCH
NAVAL REESERVE
NEW BRUNSWICK
NEW CANAAN
NEW CANADIAN
NEW DELHI
NEW ENGLAND
NEW ENGLANDER
NEW ENGLISH
NEW GUINEA
NEW HAMPSHIRE
NEW HAVEN
NEW HEBRIDES
NEW JERSEY
NEW MEXICO
NEW ROCHELLE
NEW SOUTH
NEW YORK
NEW ZEALAND
NORTH AMERICA
NORTH AMERICAN
NORTH ATLANTIC
NORTH CAROLINA
NORTH CENTRAL
NORTH DAKOTA
NORTHERN IRELAND
NORTHWEST TERRITORIES
NOTRE DAME
NOVA SCOTIA
NOVA SCOTIAN
NUCLEAR ENERGY
NUCLEAR POWER
NUCLEAR RESEARCH
NUCLEAR SCIENCE
OBSERVATOIRE ROYALE
OLD AGE
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ORTA DOGU
OUTRE MER
PAN AMERICA
PAN AMERICAN
PARIS BIBLIOTHEQUE
PARIS ECOLE
PARIS MUSEE
PARIS UNIVERSITE
PARK SERVICE
PARKS RECREATION
PEACE CORPS
PEACE OFFICER
PEACEFUL USES
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PUBLIC ADMINISTRATOR
PUBLIC ADMINISTRATORS
PUBLIC AFFAIRS
PUBLIC HEALTH
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PUBLIC RECORD
PUBLIC SERVANT
PUBLIC SERVICE
PUBLIC WELFARE
PUBLIC WORK
PUERTO RICO

SECTION 6

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RECHERCHE SCIENTIFIQUE
RED BLUFF
REDWOOD CITY
REGIONAL BULLETIN
REGIONAL COUNCIL
REGIONAL COMMUNITY
REGIONAL OFFICE
REGIONAL PLAN
REGIONAL PLANNING
REGIONAL RESEARCH
REGIONAL STUDY
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RESOURCES PLANNING
RETIREMENT SYSTEM
RHODE ISLAND
RIO GRANDE
RIO GRANDENSE
RIO JANEIRO
RIO PIEDRAS
RURAL DEVELOPMENT
SACRO CUORE
SAINT LAWRENCE
SAINT LOUIS
SAINT PAUL
SAN CARLOS
SAN DIEGO
SAN FRANCISCO
SAN JOSE
SAN JUAN
SAN MARCOS
SAN MATEO
SANTA ANA
SANTA BARBARA
SANTA CRUZ
SANTA FE
SANTA MARIA
SANTA MONICA
SANTA ROSA
SANTO DOMINGO
SAO PAULO
SAVINGS LOAN
SCIENTIFIC PUBLICATIONS
SCIENTIFIC REPORT
SCIENTIFIC RESEARCH
SECONDARY EDUCATION
SIERRA CLUB
SIERRA LEONE
SIERRA NEVADA
SIGNAL CORPS
SMITHSONIAN INSTITUTION
SOCIAL AFFAIRS
SOCIAL DEVELOPMENT
SOCIAL ISSUES
SOCIAL PLAN
SOCIAL PLANNING
SOCIAL POLICIES
SOCIAL POLICY
SOCIAL POLITICAL
SOCIAL SCIENCE
SOCIAL SCIENTIST
SOCIAL SECURITY
SOCIAL WELFARE
SOCIAL WORK
SOCIALISTE ROMANIA
SOCIOLOGICAL REVIEW
SOIL SCIENCE
SOIL SCIENTISTS
SOLID STATE
SOLOMON ISLANDS
SOUTH AFRICA
SOUTH AFRICAN
SOUTH AMERICA
SOUTH AMERICAN
SOUTH BEND
SOUTH CAROLINA
SOUTH DAKOTA
SOUTH PACIFIC
SOUTHERN CALIFORNIA
SPACE SCIENCES
STATEN ISLAND
STATISTICAL ABSTRACT
STATISTICAL SERVICE
STOCKHOLM NATIONALMUSEUM
STOCKHOLM UNIVERSITETET
SYSTEMS COMMAND
TADZHIKSKOI SSR
TAMIL NADU
TEACHER EDUCATION
TECHNICAL ASSISTANCE
TECHNICAL BOOKS
TECHNICAL BULLETIN
TECHNICAL JOURNAL
TECHNICAL REPORTS
TECHNICAL SERIES
TECHNISCHE HOCHSCHULE
TEL AVIV
TERVEUREN MUSEE
TESTING MATERIALS
TEXTILE SCIENCE
TIMBER RESEARCH
TOKYO DAIGAKU
TOWARZTSTWO NAUKOWE
TOWARZYSTWO PRZYJACIOL
TRADE LIST
TRINIDAD TOBAGO
TSENTRALNAIA NAUCHNAI
TUDOMANY EGYETEM
TWIN CITIES
UCHENYE ZAPISKI
UNEMPLOYMENT INSURANCE
UNITED ARAB REPUBLIC
UNITED KINGDOM
UNITED NATIONS
UNITED PROVINCES
UNITED STATES
URBAN AFFAIRS
URBAN DEVELOPMENT
URBAN RENEWAL
URBAN STUDIES
UTTAR PRADESH
UZBEKSKOI SSR
VALUE LINE
VECTOR CONTROL
VENERAL DISEASE
VETERANS AFFAIRS
VIENNA MUSEUM
VIENNA OSTERREICHISCHE
VIENNA UNIVERSITAT
VIRGIN ISLANDS
VSESOIUZNYI INSTITUT
VYCHISLITELNYI TSENTR
VYSOKA SKOLA
WALL STREET
WAR PRODUCTION
WAR RELOCATION
WARSAW BIBLIOTEKA
WARSAW INSTYTUT
WARSAW MUZEUM
WARSAW SZKOLA
WARSAW UNIWERSYTET
WATER POLLUTION
WATER QUALITY
WATER RESOURCES
WATER RIGHTS
WATER SUPPLY
WATER WORKS
WELFARE ASSOCIATION
WELFARE LEAGUE
WEST AFRICA
WEST INDIAN
WEST POINT
WEST VIRGINIA
WESTERN AUSTRALIA
WESTERN REGION
WHITE HOUSE
WOOD PRODUCTS
WORKING PAPER
WORLD HEALTH
WYDZIAL NAUK
WYZSZA SZKOLA
YOUTH AUTHORITY
ZEMALJSKI MUSEJ
ZESZYTY NAUKOWE
ZHIZNI NAUKE
ZONING COMMISSION